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THE VETERINARY JOURNAL

A Monthly Review of Veterinary Science.

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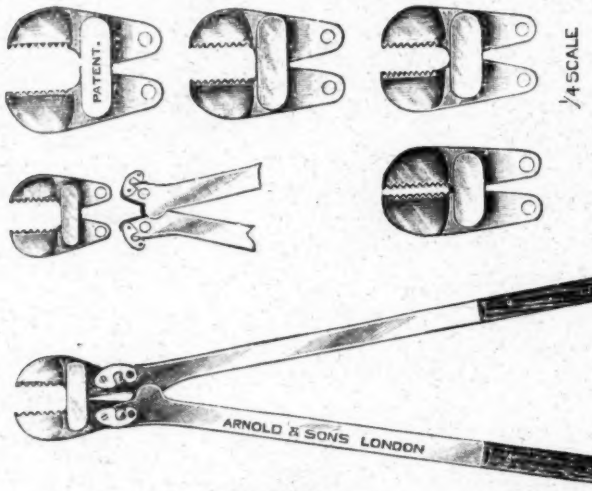

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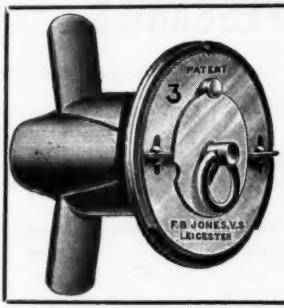

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MR. C. J. REAKES, M.R.C.V.S., D.V.Sc.

Director of the Livestock and Meat Division and Chief Veterinary Officer to the New Zealand Government.

THE

VETERINARY JOURNAL

APRIL, 1912.

Mr. C. J. REAKES, M.R.C.V.S., D.V.Sc.

Of late years one of the most marked features in the development of Britain's Colonies and Dependencies has been the advancement of New Zealand, and one of the greatest factors in this has been the rapid development of her agricultural and pastoral industries. The industry and enterprise of her farmers, aided by an excellent climate and wise legislation, have rendered possible the settlement of almost every part of the country, and not a little of the credit of its prosperity can be claimed to be due to the scientific work of members of our profession. The Veterinary Department of New Zealand is probably the most influential branch of the Department of Agriculture, as so much depends upon the prevention and spread of disease amongst the flocks and herds, and, in addition, it holds control of the preparation and inspection of the enormous quantities of meat which, together with the dairy produce, are annually despatched to England.

Naturally when a department is appreciated for its efficiency great credit must be given to its head, in this case the subject of our frontispiece. After graduating from the London Veterinary College in 1892, Mr. Reakes took up the life of a general practitioner, eventually settling down at Orpington, in Kent, from whence, at the request of Mr. John Gilruth (who was then forming the New Zealand Veterinary Department), he emigrated to that country. His professional ability and tact were speedily recognized, and he was promoted to be second in command.

On the appointment some few years ago of Mr. Gilruth to the Principalship of the Melbourne University Veterinary College, Mr. Reakes was unanimously elected as Director of the Live

Stock and Meat Division. His services are highly appreciated both by the Government and by his own staff, whose loyalty to their Chief is proverbial.

On the staff there are about thirty qualified officials holding the British Veterinary Diploma, with a large number of meat inspectors, who act under their supervision, and their work includes the investigation of outbreaks of disease amongst the stock of the country, and the inspection of meat intended for home consumption and for exportation.

In the question of meat inspection New Zealand is far ahead of England, for, by law, every town of over 2,000 inhabitants has to have its public abattoir and proper inspection of meat by a duly qualified official; and even in the appreciation of the superiority of the qualified man over the quack New Zealand compares quite favourably with the Mother Country. It is only in scattered districts where a qualified man cannot be obtained that the quack flourishes.

That this, too, is largely owing to the work of Mr. Reakes is shown by an extract received from a New Zealand correspondent a few days ago, in which he says: "The profession in New Zealand is undoubtedly in a higher position in the public esteem than in any other part of the world. The quack is *non est*, and yet at present there is no Veterinary Surgeons Act whatever. For this, Mr. Reakes deserves the fullest credit. He has the full confidence of both sides of the House and the country, and is the most popular man in any State Department. His staff are all loyal to him, and he, as goes without saying, is loyal to them." We have quoted this in full as, from the source from which it comes (although it expresses exactly the opinion which those in England who have the good fortune to have personal acquaintance with Mr. Reakes would expect) it carries more force and conviction by coming from one on the spot.

The veterinary profession in New Zealand is in safe hands, and we may rest assured that the usefulness of the Department of Live Stock will be appreciated more and more as time goes on.

Editorials.

Indexed B. A. I.

THE STATUS OF THE PROFESSION IN AUSTRALIA.

As we are sure that the profession in England, especially under the adverse conditions which the multiplication of the motor-car has brought about, will be pleased to hear of the attempts which are being made to raise the status of the veterinary surgeon in our Colonies, we are publishing in this month's and the May numbers, in detail, a new Act to regulate the practice of veterinary surgery in Western Australia.

In Melbourne there has been established a veterinary school which compares favourably, in its buildings and educational course, with any school in the world, a description of which we shall publish next month.

The matriculation examination is the same which is required for other students of the University. It is "similar to that required for the medical profession, and for all veterinary schools in the United Kingdom," and the degree given at the end of five years is that of Bachelor of Veterinary Science, and after being graduated for two years a candidate may sit for the Degree of Doctor of Veterinary Science. For those who feel it impossible to take so high a degree a "licence to practice" may be obtained after four years' study, but every effort is made to induce candidates to work for the higher qualification.

It must be a great source of gratification to Dr. W. T. Kendall, M.R.C.V.S., who may safely be said to be the father of veterinary science in Australia, to see in the present year such a magnificent sequel to the efforts which he first made in 1888. In that year he established the Melbourne Veterinary College entirely without State assistance and without help from any public body, and it is worthy of permanent record that it was the first veterinary college in the world to establish a four years' course as a necessary qualification for the diploma.

In Western Australia the new Act may be said to be a good foundation, and we sincerely hope that veterinary science will within a few years be of equal importance in that division of Australia as it is at the present time recognized to be in

Victoria. Perhaps it may not be out of place to prophesy that before another ten years have passed there will be established in Western Australia a veterinary school of equal size and importance to that which has already become a recognized faculty in Victoria.

ROYAL COMMISSION ON VIVISECTION.

THE final report of the Royal Commission on Vivisection has been published, and in a future issue of THE VETERINARY JOURNAL we propose to give an abstract containing the more important parts of the report.

In the main, the Commissioners fully justify this method of research, and also make several recommendations which they suggest should be added to the existing law on the subject.

The principal conclusion arrived at and which speaks for itself is as follows: "After full consideration we are led to the conclusion that experiments upon animals, adequately safeguarded by law, faithfully administered, are morally justifiable and should not be prohibited by legislation." This is the verdict arrived at after a very thorough and impartial inquiry by trained men who are best situated to draw fair conclusions. Evidence was given by some of the most ardent anti-vivisectors, and concerning some of their statements the report says: "After careful consideration we have come to the conclusion that the witnesses have either misapprehended or inaccurately described the facts of the experiments. . . . . So far as we can judge, we believe that holders of licences and certificates, with rare exceptions, have endeavoured with loyalty and good faith to conform to the provisions of the law."

General Articles.

STUDIES ON THE ETIOLOGY OF EQUINE INFLUENZA.*

By N. S. FERRY, Ph.B., M.D.

(From the Research Laboratory of Parke, Davis and Co., Detroit, Mich.).

Indexed B. & L.

After a careful review of the literature on equine influenza, one must be convinced that little is known about the etiology of the disease. Moore, in his text-book on the Pathology of Infectious Diseases of Animals, has very tersely defined the term, *equine influenza:* "Influenza is a generic term employed to designate a large variety of symptoms." Hutyra and Marek, in their "Spezielle Pathologie und Therapie der Haustiere," have concluded upon the etiology of the disease as follows: "The primary cause of the contagious character of the disease is at the present time not thoroughly understood. From the bacteriological investigations, thus far, is shown only the fact that two bacteria predominate, the *Streptococcus equi* and *Bacillus equi septicus.*" Friedberger and Fröhner admit that the cause of the disease is unknown. Law, who has given the literature on the subject a thorough review, says: "Our knowledge of the bacteria of equine influenza is as yet very imperfect and uncertain."

The two possible clinical entities, equine contagious pneumonia and strangles, so frequently occur side by side in the same stable, and are so often found following symptoms diagnostic of influenza that some authorities have considered them to be in some way associated. The situation, however, relative to the etiological factors concerned is in somewhat of a chaotic state. It is an interesting fact that, although a streptococcus, presumably the *S. equi* of Schütz, has been found at one time or another by different observers in all of these conditions, yet, for lack of conclusive proof to the contrary, authors must still continue to treat them as separate and distinct diseases.

The *S. equi* was first described by Schütz in 1888, and identified by him and also by Sand and Hensen, independently,

* Read at the meeting of the Society of American Bacteriologists in joint session with the American Association for the Advancement of Science, Washington, D.C., December 27th to 30th, 1911.

as the cause of strangles. It is found so constantly in the lesions which always accompany this disease that it has become recognized by practically all authorities as its cause. Some, also, associate this streptococcus very closely with contagious pneumonia of horses; in fact, streptococci have been found generally in pure cultures from the lungs and pleural exudate by all observers. Lignières, on the other hand, who first described a cocco-bacillus as the cause of influenza, the *Bacillus equi septicus*, claimed to have found the same organism in strangles and contagious pneumonia, and argued that the *S. equi* was a secondary invader in these conditions. The large majority of observers have not corroborated Lignières's findings, and, therefore, his conclusions are not generally accepted.

The work which is the subject of this paper was started in November, 1910, at the stockyards in Kansas City, where the writer had plenty of opportunity to study the disease in all its stages, and also to study at the same time the conditions known as contagious pneumonia and strangles. It was my aim at first to determine the micro-organisms predominating in the cultures taken from horses suffering with influenza, in the early and acute stages, and later, if possible, to draw some conclusions as to the relationship of the disease to equine contagious pneumonia and the disease known as strangles. Horses were watched very carefully for the first indication of any abnormal condition, which, in the majority of cases, proved to be a rise in temperature. As soon as this rise made its appearance, and in some instances in anticipation of it, cultures were taken, irrespective of any other symptoms, from the eyes, nostrils, trachea and, later on, from the pus from abscesses in cases of strangles. Blood cultures were obtained several months later from a large hospital in New York City, and also from a hospital adjoining the stockyards of East St. Louis. It was found, contrary to the reports of some observers, that symptoms indicative of infection of the lower respiratory tract preceded those of the eyes and nostrils, namely, a slight husky cough, with, at times, laboured respiration. Cultures, therefore, were always taken at once from trachea.

In taking the tracheal cultures the following procedure was adhered to. The neck of the animal was shaved over the lower trachea and rendered as clean as possible with soap and germicidal

solutions. Through a short incision into the skin a large sterile trocar and cannula was passed downward directly into the trachea between the cartilaginous rings. The trocar was withdrawn and through the cannula was passed a sterile swab on a long, stiff wire. With this method, cultures may be taken directly from the lower trachea, eliminating at once contaminating organisms, which are found normally in the upper air-passages, and, as secondary invaders, greatly increased in disease. One is able to approach, at the same time, very close to the bifurcation of the trachea and thus obtain exudates directly from the lungs—a very valuable aid in those cases where pneumonia complications are suspected.

Following are the histories of the horses, with the results of the bacteriological findings:—

November 28, 1910.—Horse 1.—Age 10 years.—Recovering from an acute attack of influenza; at present suffering with purpura; nose, legs and abdomen swollen; very weak condition; unable to move; no cough, slight discharge from nose; temperature 103.5°; cultures taken from nose and trachea. *Results:* Nose *Staphylococcus aureus*, and *S. pyocyaneus*. Trachea, no growth.

November 28, 1910.—Horse 2.—Age 4 years.—Early stages; very sick; respiration laboured; cough; slight discharge from nose, temperature 104°; cultures taken from trachea. *Results:* Streptococcus, pure.

November 27, 1910.—Horse 3.—Age 5 years.—Early stages; very sick; congestion of lungs; slight discharge from nose; temperature 104.5°; cultures taken from trachea and nose. *Results:* Nose, *Staph. aureus;* trachea, streptococcus.

November 29, 1910.—Horse 4.—Age 5 years.—Recovery from typical attack of influenza; sick about ten days; temperature 103°; no cough; cultures taken from trachea. *Results:* Streptococcus.

December 1, 1910.—Horse 5.—Age 7 years.—Early stages; very sick; beginning congestion of lungs; temperature 104.2°; cultures taken from trachea. *Results:* Streptococcus.

December 1, 1910.—Horse 6.—Age 5 years.—Typical attack of influenza past week; recovered from acute symptoms; severe cough at present; had chill November 31, 1910; temperature 103°; cultures taken from trachea and nose. *Results:* Nose, *S. aureus* and *citreus;* trachea, streptococcus.

December 3, 1910.—Horse 7.—Recovered from typical attack of influenza; suffering with strangles at present; abscess of submaxillary glands; cultures taken from pus of abscess. *Results: Staph. albus;* no growth of streptococcus in cultures.

December 5, 1910.—Horse 8.—Age 8 years.—Exposed one week; first symptoms just beginning to appear; nasal mucous membrane congested; slight watery discharge from nose; temperature 102°; cultures taken from trachea and nose. *Result:* Nose, streptococcus; trachea, streptococcus.

December 5, 1910.—Horse 9.—Age 4 years.—Exposed one week; legs slightly swollen; slight discharge from nose; temperature 103.5°; cultures taken from trachea and nose. *Results:* Nose, *S. aureus* and *albus;* trachea, no growth.

December 7, 1910.—Horse 10.—Exposed one week; severe cough; no discharge from nose; temperature 103°; cultures taken from trachea and nose. *Results:* Trachea, streptococcus; nose, *S. albus and aureus.*

December 7, 1910.—Horse 11.—Exposed one week; temperature 102°; no other symptoms; culture taken from trachea. *Results:* Streptococcus and *S. albus.*

December 8, 1910.—Horse 12.—Second day of symptoms; temperature 104°; cultures taken from trachea. *Results:* Streptococcus; *S. albus* and *aureus.*

December 10, 1910.—Horse 13.—Strangles; cultures from pus. *Results:* Streptococcus; *S. albus* and *aureus.*

December 10, 1910.—Horse 14.—Strangles; cultures from pus. *Results:* Streptococcus and *S. albus.*

December 11, 1910.—Horse 15.—Symptoms just appeared; was brought in supposedly foundered; temperature 104°; congestion of lungs; laboured breathing; very sick; cultures taken from trachea and nose. *Results:* Trachea, streptococcus, pure; nose, *S. albus* and *aureus.*

December 14, 1910.—Horse 16.—Typical influenza; recovered from acute symptoms; cultures from nasal discharge. *Results: S. albus.*

December 14, 1910.—Horse 17.—Typical influenza; recovered from acute symptoms; cultures from nasal discharge. *Results: S. albus.*

December 14, 1910.—Horse 18.—Typical influenza; recovered from acute symptoms; cultures from nasal discharge. *Results: S. albus* and *aureus.*

December 14, 1910.—Horse 19.—Typical influenza; recovered from acute symptoms; cultures from nasal discharge. *Results:* Streptococcus and *S. albus.*

December 15, 1910.—Horse 20.—Only symptoms, slight rise in temperature; exposed four days; took culture from trachea. *Results: S. aureus.*

March 22, 1911.—Horse 21.—Typical, acute influenza; early stages; rather laboured breathing; slight cough; no discharge from eyes or nostrils; temperature 104°; no cough; cultures taken from trachea. *Results: S. aureus* and *albus.*

March 22, 1911.—Horse 22.—Recovered from acute stage; slight discharge from nose; purulent; temperature 100°; no cough; cultures taken from trachea. *Results:* No growth.

March 22, 1911.—Horse 23.—Horse died in acute stage of a typical case of influenza; cultures taken from trachea. *Results:* pure culture of streptococcus.

March 22, 1911.—Horse 24.—Later stage of typical attack; yellow purulent discharge from nostrils; cultures taken from trachea and nostrils. *Results:* Trachea, streptococcus and *S. aureus*; nostrils, streptococcus and *S. aureus.*

Horse 25.—Early case of strangles; young colt isolated in small stable; no other cases in town; stable was used as a livery stable several years previous, in which many cases of influenza and strangles had occurred; only symptom was small submaxillary abscess; history of slight cough two weeks previously; cultures taken from trachea and abscess. *Results:* Trachea, streptococcus, pure; abscess, streptococcus and *S. albus.*

Conclusions.—18 tracheal cultures were taken with the result that the streptococcus was found fourteen times, nearly pure. The staphylococcus was the contaminating organism usually found. The streptococcus was found twice out of the three cases of strangles from which cultures were taken. The streptococcus was found uncontaminated in the trachea of one case of so-called strangles, while the streptococcus and *Staphylococcus albus* were found in the pus of the submaxillary abscess.

Blood Cultures.

As all blood cultures were obtained from horses which had been placed in the hospitals for treatment by private individuals, shaving or clipping of the hair at the site of operation had to

be dispensed with, so it is very probable that the presence of some of the organisms found in the cultures was due to accidental contamination. From 10 to 20 c.c. of blood were drawn from the jugular vein of each horse, planted in flasks, and then shipped to the laboratory where the remainder of the work was carried on. Cultures were obtained from thirty horses with the following results: 10 contained a streptococcus alone, 10 contained a streptococcus and others, 1 contained a large bacillus alone, and 9 gave no growth; 20 out of 30 cultures contained a streptococcus. The contaminating organisms were either a staphylococcus or the *Bacillus subtilis* in the majority of cases.

Following are the histories of these horses with the bacteriological findings of each:—

30.—Black gelding; weight about 1,200 lb.; 9 years old; in fair condition physically; suffering with acute influenza. The following symptoms were noticeable: Pulse 55; temperature 104°; respiration 32; head drooping; coat rough; staring and animal depressed in general; conjunctiva slightly congested; eyelids swollen and watery; discharge from eyes and nostrils; anorexia and dyspnœa; slight cough; lungs slightly involved; this animal was suffering from the disease when unloaded from car. *Bacteriological finding:* No growth.

31.—Grey gelding; weight 1,200 lb.; about 7 years old; this animal had a very mild form of the disease; at the time the blood was obtained the pulse was 40; temperature 103°; respiration 26; was not off feed; no complications. *Bacteriological finding:* Streptococcus.

32.—White face, roan gelding; about 8 years old; weight 900 lb.; pulse 40, respiration 25; temperature 102.4°; was suffering with influenza upon arrival in city; not a severe case; eyes swollen and discharging serous material; appetite somewhat impaired; a slight laryngitis accompanied the disease. *Bacteriological finding:* No growth.

33.—Bay gelding; 8 years old; weight about 1,300 lb.; suffering with influenza and laryngitis; coughs frequently and a marked depression noticeable; pulse 55; respiration 30; temperature 103°; no discharge from eyes, nor do they seem abnormal in any way; no complications other than sore throat. *Bacteriological finding:* No growth.

34.—Black gelding; about 9 years old; weight 1,200 lb.;

diagnosis, influenza complicated with pneumonia; animal suffering intensely, having difficulty in breathing; somewhat emaciated; pulse 60; temperature 104°; respiration 35; short jerky movements; eyes expressionless and partially closed; slight nonpurulent discharge from eyes; abdominal breathing; off feed. *Bacteriological finding:* Streptococcus.

35.—Bay gelding; 6 years old; weight 1,100 lb.; coach horse; in good physical condition, the attack inconveniencing the animal but little; uncomplicated, very mild attack; one eye (right) closed and very sensitive; pulse 40; respiration 22; temperature 105°; good appetite; very active. *Bacteriological finding:* Streptococcus.

36.—Black gelding; 8 years old; weight about 1,200 lb.; Percheron; symptoms of influenza; animal depressed; head drooping; pulse 40; temperature 107°; respiration 28; off feed. *Bacteriological finding:* No growth.

37.—Black gelding; 9 years old; weight 1,600 lb.; diagnosis, influenza, complicated with pneumonia; very severe case anorexia, dyspnœa and epistaxis (left nostril); trembling in shoulder; tucked up abdomen; discharge from both eyes; pulse 60; temperature 105°; respiration 35; pulse very irregular and weak; limbs very warm. *Bacteriological finding:* Streptococcus and others.

38.—Bay gelding; shire; 6 years old; weight 1,400 lb.; diagnosis, influenza and pneumonia; animal had dejected appearance; standing with fore legs spread well apart, head drooping and panting; pulse 40; respiration 36; temperature 106°; prognosis doubtful. *Bacteriological finding:* No growth.

39.—Grey gelding; 8 years old; broncho stock; very wild and treacherous; temperature 102.5°; respiration 26; eyes slightly swollen and discharging; pulse 42; appetite impaired; no apparent complications; influenza. *Bacteriological finding:* No growth.

40.—Bay gelding; 6 years old; weight 1,000 lb.; influenza; very severe case; eyes clear; breathing hurried; lips dry and parched; general depression in evidence; pulse 55; temperature 105.8°; respiration 40; refuses feed and seems to be semiconscious. *Bacteriological finding:* Streptococcus and others.

41.—Bay gelding; 7 years old; received in recent shipment from the west; acute case of influenza; temperature 105.8°; respiration 35; pulse 70; marked general depression. *Bacteriological finding:* Streptococcus.

42.—Bay mare; 9 years old; sick upon arrival in city, with influenza complicated with pneumonia; breathing heavily and depressed; temperature 104.6°; respiration 30; pulse 75; animal very weak. *Bacteriological finding:* Long wide bacillus.

43.—Grey mare; 5 years old; received at hospital June, 1911; mild case of influenza; temperature 106.2°; had high fever for two days; appetite slightly impaired. *Bacteriological finding:* Streptococcus.

44.—Roan gelding; 6 years old; temperature 105.2°; respiration 28; pulse 65; conjunctiva congested and profuse lachrymous discharge from both eyes; off feed and very weak; slight cough. *Bacteriological finding:* Streptococcus and long narrow bacillus.

45.—White gelding; 7 years old; temperature 104.8°; respiration 35; pulse 70; laryngitis and cough; conjunctiva congested. *Bacteriological finding:* No growth.

46.—Bay gelding; heavy draft animal; 6 years old; temperature 105.6°; pulse 50; respiration 30; off feed; head drooping; very listless; considerable cough; been in hospital two days. *Bacteriological finding:* Streptococcus.

47.—Black mare; coach horse; about 6 years old; influenza complicated with laryngitis; lungs also involved, as evidenced by difficult breathing; temperature 106°; respiration 38; pulse 80. *Bacteriological finding:* Streptococcus and others.

48.—Berkshire pony; 4 years old; mild case; temperature 104.6°; pulse 44; respiration 28; animal not off feed; slight cough. *Bacteriological finding:* Streptococcus and bacillus.

49.—Bay mare; draft animal; temperature 106.2°; pulse 68; respiration 40; marked depression; coat rough; staring; eyes expressionless; back arched; severe cough; shows nervous derangement; reeling and staggering at times, being in a dazed condition. *Bacteriological finding:* Streptococcus.

50.—Bay mare; 6 years old; mild case; temperature 105°; pulse 30; respiration 26; appetite slightly impaired. *Bacteriological finding:* No growth.

51.—Bay mare; 5 years old; draft; influenza and congestion of the lungs; temperature 105.4°; pulse 12; respiration 35; breathes heavily and is very weak; occasionally breaks out in cold, clammy sweat. *Bacteriological finding:* Streptococcus and others.

52.—Black gelding; 7 years old; very mild case; temperature 104.2°; pulse 48; respiration 29; conjunctiva slightly congested; Schneiderian membrane inflamed and watery discharge from nostrils; a recent case. *Bacteriological finding:* Streptococcus.

53.—Black mare; 7 years old; influenza complicated with pneumonia, the pneumonia symptoms being more pronounced; laboured breathing, double; temperature 106.2°; pulse 82; respiration 36; right eye closed; watery discharge from nostrils; coughs. *Bacteriological finding:* Streptococcus.

54.—Grey gelding; 8 years old; coach; recently arrived from the West; temperature 104.8°; pulse 49; respiration 32; off feed; listless appearance and depressed in general; no cough, throat sore. *Bacteriological finding:* Streptococcus and bacillus.

55.—Bay mare; 9 years old; mild attack; temperature 103.8°; pulse 46; respiration 34; impaired appetite only noticeable symptoms. *Bacteriological finding:* Streptococcus and others.

56.—Bay gelding; 7 years old; pulse 68; temperature 105°; respiration 32; off feed and depressed. *Bacteriological finding:* Streptococcus.

57.—Bay mare; 9 years old; suffering with influenza, complicated with pneumonia; pulse 74; temperature 105.6°; respiration 36; refuses feed; coughs; watery discharge from eyes and nostrils; conjunctiva inflamed; very weak. *Bacteriological finding:* No growth.

58.—Mule; typical influenza. *Bacteriological finding:* Streptococcus.

59.—Mule; typical influenza. *Bacteriological finding:* Streptococcus and others.

The results of the examination of the blood cultures were as follows:—

Horse 30, No growth.
" 31, Streptococcus.
" 32, No growth.
" 33, No growth.
" 34, Streptococcus.
" 35, Streptococcus.
" 36, No growth.
" 37, Streptococcus plus others.
" 38, No growth.
" 39, No growth.
" 40, Streptococcus plus others.
" 41, Streptococcus.
" 42, Long fat Bacillus.
" 43, Streptococcus.
" 44, Streptococcus plus narrow Bacillus.

Horse 45, No growth.
" 46, Streptococcus.
" 47, Streptococcus plus others.
" 48, Streptococcus plus Bacillus.
" 49, Streptococcus.
" 50, No growth.
" 51, Streptococcus plus others.
" 52, Streptococcus.
" 53, Streptococcus plus Bacillus.
" 54, Streptococcus plus Bacillus.
" 55, Streptococcus plus others.
" 56, Streptococcus.
" 57, No growth.
" 58, Streptococcus.
" 59, Streptococcus plus others.

During the cultivation of the influenza cultures it was observed that the streptococcus always grew very luxuriantly, in broth, in the presence of the staphylococcus. It was also found, on looking up the histories of the cases, that in those with the most pronounced symptoms the streptococcus was found together with the staphylococcus, usually the *S. albus*.

Thinking that, perhaps, this association was conducive to the production of favourable conditions for the growth of this streptococcus, a preliminary test was started with serum from the blood of a typical case of influenza, which had proven sterile with all ordinary tests. Three flasks containing 500 c.c. each of plain bouillon were treated as follows:—

Into flask No. 1 was planted 5 c.c. of the serum, into flask No. 2 was planted 5 c.c. of the serum plus a pure culture of *S. albus equine*, and into flask No. 3 was planted the culture of *S. albus* as a control. After three days' incubation an examination was made and it was found that flask No. 1 showed no growth; flask No. 2 showed the streptococcus, plus *S. albus*, and flask No. 3 the culture of *S. albus* pure. The test was repeated with this same serum with always the same results. Evidently the presence of the staphylococcus was essential for the growth of this strain of streptococcus under artificial surroundings. In order to make a thorough test of this striking symbiosis, a series of experiments were undertaken with serum from other typical influenza cases with the following results:—

Thirty-three specimens were examined: seven contained the streptococcus in the bouillon alone (flask No. 1); fourteen contained the streptococcus in the bouillon, plus the staphylococcus; nine contained other organisms, as well as the streptococcus, either the staphylococcus or rather large bacillus. Following are the results tabulated:—

No.	Flask 1. Serum.	Flask 2. Serum + Staph.	Flask 3. Staph.	Combined Results.
60	—	Strep. + Bac. + Staph.	Staph.	Strep. + Bac.
61	—	Strep. + Staph.	,,	Strep.
62	—	—	,,	—
63	—	—	,,	—
64	—	Strep. + Staph.	,,	Strep.
65	Staph. + Strep.	Strep. + Staph.	,,	Strep.
66	Bac.	Strep. + Staph.	,,	Bac. + Strep.
67	—	—	,,	—
68	—	—	,,	—
69	Strep.	Strep. + Staph.	,,	Strep.
70	Bac.	Bac. + Staph.	,,	Bac.
71	Bac.	Strep. + Staph.	,,	Bac. + Strep.

No.	Flask 1. Serum.	Flask 2. Serum + Staph.	Flask 3. Staph.	Combined Results.
72	Strep.	Strep. + Staph.	Staph.	Strep.
73	—	—	,,	—
74	—	—	,,	—
75	—	Strep. + Staph.	,,	Strep.
76	—	—	,,	—
77	—	—	,,	—
78	—	—	,,	—
79	—	—	,,	—
80	Bac. + Staph.	Bac. + Staph.	,,	Bac. + Staph.
81	—	Strep. + Staph.	,,	Strep.
82	—	Strep. + Staph.	,,	Strep.
83	Bac.	Staph.	,,	Bac.
84	Staph.	Staph.	,,	Staph.
85	Strep.	Strep. + Staph.	,,	Strep.
86	—	—	,,	—
87	—	—	,,	—
88	—	—	,,	—
89	Strep.	Strep. + Staph.	,,	Strep.
90	Bac.	Strep. + Bac. + Staph.	,,	Strep. + Bac.
91	Strep.	Strep. + Staph.	,,	Strep.
92	Strep.	Strep. + Staph.	,,	Strep.

In all the cases except one, the streptococcus could easily be separated from the staphylococcus and grown independently without further difficulty. In this one case it was absolutely impossible to isolate the streptococcus. In all subcultures on solid media the staphylococcus was found pure, while in all subcultures in bouillon the streptococcus was found as well as the staphylococcus. Subcultures from solid media into bouillon gave the staphylococcus pure. Unfortunately, the culture finally became contaminated with the *Bacillus subtilis* and was destroyed.

Another interesting thing about this organism is the fact that it has passed many times through Berkefeld filters, and a few times through Chamberland filters, showing that it is very minute in some stage of its life-cycle. It is also a very resistant organism; I have cultures growing in the ice box on ascitic agar which were planted February 11, 1911. The media is showing evidence of becoming very dry, but the organisms are still alive. They are also very resistant to heat, having withstood a temperature of 58° C. for two hours.

Conclusions.

A streptococcus, presumably the organism described by Schütz and others, has been cultivated uncontaminated from the trachea in the early stages of nearly every case of acute influenza studied.

An organism with the same characteristics has been isolated from the blood of thirty-four out of sixty-three cases.

Symbiotic relationship with the staphylococcus, in both cultures, seems to favour the growth of this streptococcus.

The *Bacillus equi septicus* has not been seen in, nor isolated from, either the trachea or blood of a single case of influenza; therefore, Lignières' findings have not been corroborated.

The cultural characteristics of the streptococcus in question will not be reviewed at this time, but we will state that, so far, we have not been able to find any point of difference between this organism and the streptococcus isolated from the abscesses in the cases of strangles.

Our inoculation experiments have not been extensive enough to warrant any conclusions as to the infectious nature of the organisms. We have record, however, of one case with the fever, prostration, cough and discharge from the nostrils, which was very characteristic of influenza. This followed the intravenous injection of a pure culture of the organism. We had another case of a large tumour at the site of inoculation after a subcutaneous injection of the same culture.

From the light of our work up to the present time we do not feel justified in stating positively that this streptococcus is the cause of influenza in horses, but we do believe that the findings, combined with those of other investigators, point very strongly to that conclusion, or at least show the close relationship of this disease to strangles and contagious pneumonia.

As to the micro-organisms found predominating in these conditions, the evidence, as given by the literature, is overwhelming in favour of a streptococcus.

In strangles a streptococcus is found by all observers.

The following is a review of the results of the bacteriological investigations in contagious pneumonia:—

Siedamgrotzky: Micrococci in lungs and exudates.
Diekerhoff: Streptococci in pleural exudates.
Mendelsohn: Streptococci in pleural exudates.
Peterlein: Chain cocci.
Perroncito: Chain cocci.
Delamotte and Chantemesse: Chain cocci.
Mosselman and Lienaux: Chain cocci.
Schütz: Streptococci.
Moore: Streptococci.
Fieder: Streptococci.

Lignières: Cocco-baccilli and streptococci.
Cadiac: Streptococci.
Rust: Streptococci.

In influenza a streptococcus has been found in the upper respiratory tract by many observers, while the results of these investigations show that a streptococcus has been found pure in the lower respiratory tract and blood in the large majority of cases.

If this streptococcus which we have isolated from the trachea and blood of influenza proves to be the same organism that is found in strangles, and also contagious pneumonia, and it is agreed by all authorities that the streptococcus found in strangles is the cause of that disease, then, I believe, I am justified in putting forward the argument that this streptococcus is the cause of the "symptoms complex" we have termed *influenza*, and that strangles and contagious pneumonia are not clinical entities, but complications of influenza due either to secondary infections or to extension of the primary disease.

The cultural characteristics of this organism, as well as some other work we are carrying on along this line, will be taken up in a later study.

THE NASO-PALATINE APERTURES, JACOBSON'S ORGAN, AND STENSON'S CANAL.

(*Continued from p.* 139.)

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Indexed B. A. I.

Ox.

Anterior Naso-palatine Apertures.—In the ox they are large and elliptical, being rather more than 2 in. long, and averaging about ½ in. in width; they are rounded anteriorly, and first widening posteriorly, they terminate in short points.

The inner edge is nearly straight, only bending a little outwards at its anterior part.

The outer edge recedes from the inner in a slight curve for the anterior three parts of its length, then it curves sharply inwardly to form the posterior boundary, which, slanting backward

and inwards makes an acute angle at its juncture with the inner edge.

The anterior edge of palatal process of the maxillary bone curves down at the posterior edge of the aperture, to give facility for the course of Stenson's canal.

There is a large, diamond-shaped foramen (the incisive?), ½ in. long and ¼ in. wide, in the median line at the anterior part of the pre-maxillary suture, the bones not quite meeting at the anterior edge of the foramen.

It is through this foramen that the dental pad becomes blended with the septum nasi.

Palate.—There are seventeen pairs of bars extending backwards as far as the second premolar; behind this the palate is quite smooth. The "bars" vary somewhat in their disposition, in some instances they do not pass directly across the palate, but each of them terminates in the centre, where they overlap, generally the right-side ones lying over the edge of the left ones.

In other instances they are more or less continuous at their centres, though some are broken and discontinuous (see sketch). They are always fringed with papillæ on their posterior edges, which face backwards to the 14th (the one between the first premolars), behind this are three small bars, mere ridges of the buccal membrane, gradually losing their characteristic appearance of bars, and becoming quite smooth, in harmony with the smooth palate. The last five bars extend only over the central part of the palate, there is quite an inch of perfectly smooth membrane between their extremities and the alveoli of the molar teeth.

The dental pad is studded with flattened papillæ, there is a row of larger papillæ between the outer edge of the pad and the fossa of the upper lip. The mucous membrane is here quite smooth, and the papillæ are then continued over the front of the upper lip, and on to the muffle, where they are much enlarged and show between them a number of large glandular openings.

The dental pad is crescent-shaped, the horns of the crescent pointing backwards and embracing the first four or five bars; the posterior base is formed partly by enlarged papillæ at the horns of the crescents, and partly towards the centre, by a pair of small bars.

In the centre of the dental pad is the pentagonal gustatory pad, with its sharp apex directed forward, and having on either

side a deep channel which unite in front of the apex to form a groove, which passing forward in the median line of the dental pad divides it into two. This groove is continued on to the upper lip and marks a central raphe in the muffle, the skin of which is continued into the nasal chambers. At the posterior point of each of the lateral channels, by the gustatory pad, is the opening of Stenson's canal, through which a probe may be

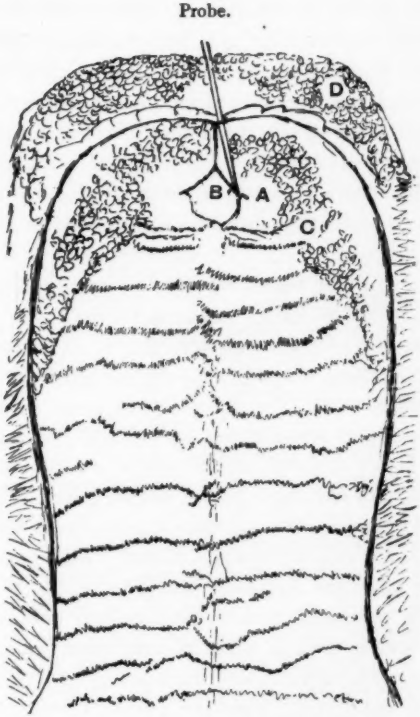

FIG. 1.—Palate of ox, showing dental and gustatory pad. The probe is passed into the buccal opening of Stenson's canal and Jacobson's organ. **A** Opening of Stenson's canal. **B** Gustatory pad. **C** Dental pad. **D** Lip.

easily passed, and which establishes a direct communication between the nasal chamber and the mouth.

On removing the buccal lining of the palate, the cartilaginous walls of Jacobson's organs and Stenson's canals are seen as two prominences, near together in the centre of the palate, where

they open into the mouth, and, diverging as they proceed backwards, they form the floors of the anterior naso-palatine apertures.

The canal narrows at its two openings, but at its central part it is as large as a lead-pencil. Inside this canal, and in its upper part, half an inch from the oral opening, is the slit-like opening of Jacobson's organ, which, proceeding backwards and inwards, becomes the basement of the flange-like bulging seen on the lower part of the septum nasi.

The septum nasi at its anterior extremity thickens and spreads out first to form a triangular base for the attachment of muscles controlling the upper lip and muffle; before this it turns over on either side of the upper median line to form the basement of the roofs and sides of the nasal chambers, as far as the attachments of the maxillary turbinated bones, and extending anteriorly in front of the nasals to form the alæ of the nostrils, it is intimately blended with the appendix of the maxillary turbinated bone.

From the triangular basement above mentioned it spreads out into a broad wing on either side, over the top of the premaxillary bones to which it is very firmly adherent; and here, through the diamond-shaped incisive foramen, it becomes so intimately blended with the fibro-cartilaginous dental pad, that even after prolonged maceration, they cannot be separated without cutting.

A branch of the cartilage passes through and along the inner margin of the anterior naso-palatine aperture and forms the walls of Stenson's canal and Jacobson's organ; this extends from end to end of the aperture, slanting upwards, and, at the posterior edge it passes upwards, under the pituitary membrane on the floor of the nostril, and is seen in that chamber as a ridge on the septum, where, about 6 in. from its origin (just the length of a probe), it ends in a *cul-de-sac*.

The rest of the anterior naso-palatine aperture is covered by a thin fibrous membrane intervening between the buccal membrane and the pituitary membrane of the nose; and, here again, after six weeks' maceration, the part reflected from the dental pad is so intimately blended with the reflected portion of the septum forming the floor of the nasal chamber that they cannot be separated without cutting.

The cartilaginous wall of Stenson's canal is formed by a

reflection from the anterior part of the septum nasi over the floor of the nasal chamber, bending down through the anterior margin of the anterior naso-palatine aperture, and then forwards to the gustatory pad. Jacobson's organ leading from this, as described elsewhere, passes into the flange of the septum, which forms its cartilaginous walls.

In one of the subjects dissected I found under the mucous membrane on either side, at points corresponding to the maxillo-premaxillary sutures, small round sacs of about the capacity of peas, containing opaque fluid of about the consistency of thick cream. I believe these to be vestigial canine teeth.

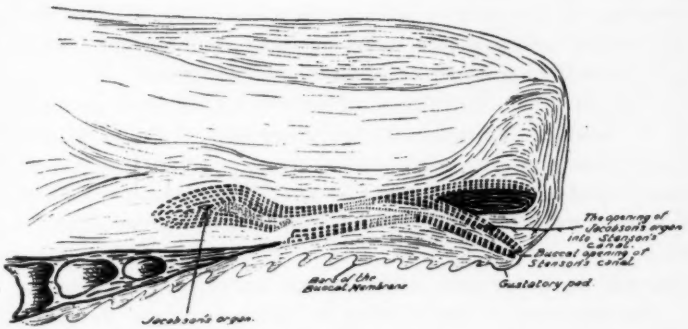

FIG. 2.—Longitudinal and vertical section of anterior portion of nose of ox, close to the septum. Dotted lines represent cartilage; dark black, bones; light shading, soft tissues.

Note on Jacobson's Organ.—The terminating *cul-de-sac* of this organ deserves special description, as I think it may throw some light on the function of the organ.

The cartilaginous walls are part of the septum nasi, or, perhaps, they would be better described as being grooved out of the septum. A little more than an inch from its termination posteriorly the cartilaginous wall bends upwards for half an inch or so, and then downwards, where its calibre is much increased, and then it bends sharply forward again, the cartilaginous walls in this way enclosing an area of thin vascular and elastic tissue, the whole, in life, being covered by a thick layer of erectile tissue. The vascular lining membrane of the organ is arranged in longitudinal plicæ or folds.

It seems to me that, in life, the organ may be capable of

distension, and that the thin membrane of the wall, within the circumscribed cartilaginous walls, may rise and fall with the ingress and egress of air.

Branches of the large palatine nerve are distributed in the spongy erectile tissue in the sub-buccal membrane surrounding the oral orifice of Stenson's canal.

The gustatory pad corresponds with the diamond-shaped incisive foramen, between the anterior extremities of the premaxillary bones; and Stenson's canal, with Jacobson's organ, opens on the floor of the nasal chamber at a point corresponding to about the centre of the outer edge of the anterior naso-palatine aperture, though the cartilaginous walls of the canal commence at the extreme anterior point and fill up all the anterior part of the aperture, the canal passing obliquely upwards and backwards from gustatory pad to floor of the nostril.

The actual nasal opening of Stenson's canal and Jacobson's organ is at the extreme anterior extremity of the floor of the nostril, and there is a very distinct canal along the floor of the nostril leading to the opening. The roof of this canal is formed by the erectile tissue about the appendix of the maxillary turbinated bone, causing the pituitary membrane to overlap the ridge at the lower part of the septum already described.

Septum nasi of the Ox after boiling!—From its anterior triangular face there are two prolongations on either side. One goes to form the walls of Stenson's canal and Jacobson's organ, and passes backwards through the anterior naso-palatine aperture, which, with its fibrous attachments it fills.

The second spreads out into a broad band and is intimately blended with, and indeed seems actually to form the appendix of, the maxillary turbinated bone.

After boiling, the fibro-cartilage lining the anterior part of the nose can be separated from the cartilage of the septum, except the two prolongations mentioned above, which remain actually and truly appendices of the septum nasi.

Sheep.

The anterior naso-palatine aperture is about 1¼ in. long and barely ⅛ in. wide; it is slightly rounded at its anterior margin, gradually drawing to a point at its posterior extremity; the inner edge shows a slight inward curve from before to behind, and

this forms a direct canal for the passage of Jacobson's organ and Stenson's canal.

The pre-maxillæ do not quite meet at their anterior margins, leaving a central opening or slit.

Palate.—There are altogether sixteen or seventeen "bars," all of them interrupted at the centre where their ends alternate and form a median groove. The bars extend as far as the second premolar only, the palate behind this is perfectly smooth; there are very small, scarcely perceptible papillæ on the first seven bars only.

The dental pad is crescent-shaped, with the tapering horns directed backwards and embracing the first two or three pairs of "bars."

The gustatory pad is seen in the centre of the body of the crescent; it is tri-lobed, the point being directed backwards, and from its anterior base is first a small eminence, and then a groove leading to the cleft in the upper lip; on either side, and behind the gustatory pad is a deep fissure, and in these fissures are the openings of Stenson's canals, communicating directly with the floors of the nasal chambers; they proceed backwards under the first "bar," which forms a protective covering for them.

A silver probe can be passed quite easily through the oral orifice into Stenson's canal directly to the nose, and with a little care it can be passed through the opening from this canal into Jacobson's organ without any dissecting or preparation.

On removing the buccal membrane, the cartilaginous wall of Jacobson's organ and Stenson's canal stands out prominently, marking the course of the canal from the oral orifice, at the posterior lateral part of the gustatory pad, backwards and upwards, through, and filling the anterior naso-palatine aperture, to the floor of the nostril.

Jacobson's organ is, in the sheep, both absolutely and relatively very large.

By taking a small piece out of the exposed cartilaginous wall of Stenson's canal, a small, slit-like opening is exposed on its upper and inner surface, close to the buccal opening. This is the opening into Jacobson's organ. This passes upwards and backwards over Stenson's canal, and under the floor of the nostril, to the lower edge of the vomer and the septum, where, under the erectile tissue and mucous membrane covering it, it forms a

kind of flange to the septum, which, meeting the appendix of the maxillary turbinated bone, a roof is formed over the canal at the bottom of the inferior meatus leading into the opening of Jacobson's organ from the nose.

Jacobson's organ extends up the septum to the region of the

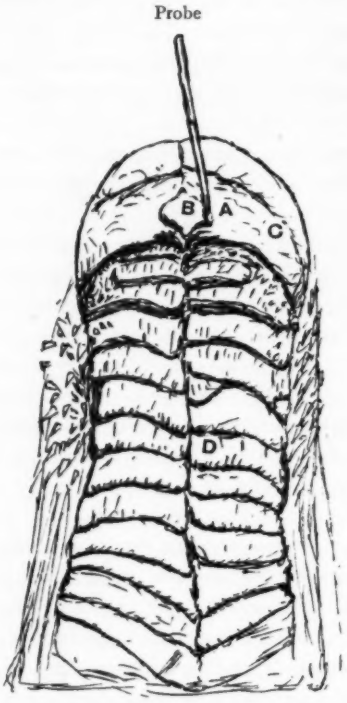

FIG. 3.—*Palate of sheep*, showing the dental and gustatory pads and "bars." The probe is passed into the *oral* orifice of Stenson's canal. **A** Opening of Stenson's canal. **B** Gustatory pad. **C** Dental pad. **D** "Bars."

distribution of the olfactory nerves, the walls getting gradually thinner, in a cross-section of the nose at a place corresponding to the first premolar teeth. The walls are fairly thick, and the organ is about the diameter of a crow-quill. A probe can be passed into it fairly easily.

In relation to the skeleton, Jacobson's organ leaves Stenson's canal as it passes through the anterior margin of the anterior naso-palatine aperture and passes backwards from this, under

the mucous membrane and erectile tissue at the floor of the nostril to the side of, and under, the "flange" of the septum nasi as described above.

Septum nasi, &c.—On removing skin, there is observed a smooth semi-synovial space under the skin, and just above the lip, as seen in the deer. This would allow the mobility of the parts.

The large space between the nasal and pre-maxillary bones is seen to be occupied by cartilaginous material, coming from the maxillary turbinated bone, and from the upper reflection of the septum, forming roof of nostril, and between these two, which fill respectively the lower half and the upper sixth, or so, of the space, is the cartilaginous reflection of the superior ala of the nostril (itself a part of the septum). This is broad at its anterior portion and gradually tapers to a point high up the space at the juncture of the nasal and maxillary bones.

This renders this part of the nostril mobile, and capable of distension and contraction, noticeably the somewhat rigid appendix of the maxillary turbinated bone can be brought to press down immediately over the opening of Jacobson's organ and Stenson's canal.

Anteriorly the septum nasi spreads into a wing on either side, which forms a cartilaginous lining to the floor of the nose, and, covering the anterior naso-palatine aperture, forms the wall of Jacobson's organ. At its extreme anterior edge it is lodged, as a tubercle, in the cleft between the antero-internal edges of the pre-maxilla. The septum, in the sheep, does not overlap the edges of these bones, but, through the cleft, it is blended intimately with the fibro-cartilaginous dental pad.

The processes forming Jacobson's organ and Stenson's canal are given off on its interior nasal edges, and pass through the anterior naso-palatine apertures, blocking them from end to end. The oral orifices of the canals correspond to the anterior edges of the apertures, and the gustatory pad would be situated between the anterior edges of the apertures and the cleft between the two pre-maxillary bones.

Description of a vertical and longitudinal section of the nose of sheep by the side of the septum nasi and just shaving Jacobson's organ and Stenson's canal, and then dissecting off the mucous membrane.

A reflection from the anterior part of the septum nasi at the symphysis pre-maxillæ dips down through the anterior part of the anterior naso-palatine aperture and forms the anterior boundary of Stenson's canal. A thin reflection of cartilage from the septum, at the anterior tapering part of the vomer (which is just at the posterior edge of the naso-palatine aperture), forms the wall of Jacobson's organ, which is carried forward to form the posterior wall of Stenson's canal, and backwards, *under* the wider, bulging part of the vomer, in fact, just over the bony

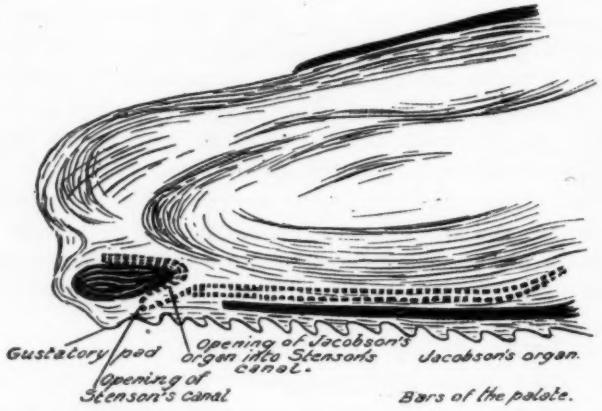

FIG. 4.—Longitudinal and vertical section of sheep's nose close to the septum. To illustrate Stenson's canal and Jacobson's organ. Dotted lines represent cartilage; dark black, bone; light shading, soft tissues.

floor of the nasal chamber to as far back as the first molar, possibly further, the canal diminishing in volume as it comes under the bulging part of the vomer. It is only in front of this that it forms the flange of the septum.

* The black, villous epithelium always seen on the anterior part of the nares of the sheep is reflected into Jacobson's organ.

(To be continued.)

A REPORT UPON THE PERMANENT VALUE OF THE ROARING OPERATION AS EVIDENCED BY THE PRESENT CONDITION OF 100 HORSES WHICH HAVE BEEN SATISFACTORILY OPERATED UPON FOR "ROARING" FROM 18 MONTHS TO 2½ YEARS AGO.

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Indexed B. A. L.

In the Veterinary Journal for January, 1911, I published a "Report upon 112 Horses Satisfactorily Treated by the New Operation for Roaring," and in the Journal for January, 1910, I had previously described the ventricle stripping operation as demonstrated to me by Professor Williams, of Cornell University, U.S.A.

Since Dr. Williams came over to England I have operated upon more than 520 individual horses, and the operation may now fairly be said to have taken its place as one of very great value to the horse-owning community, and especially is it valuable for hunters and carriage-horses, although other breeds are not exempt, as is shown by the fact that three at least of the horses whose histories are briefly given below have, since being operated upon, won well-known races.

One of the chief remarks directed against the operation when it was first introduced was to the effect *that the result, if beneficial, would not be permanent, and the main object of this present article is to prove this to be a fallacy.* For this purpose I have selected 100 cases, each of which has been done more than 18 months, and some over 2½ years, and at a later date I shall endeavour to trace them up again.

I frankly admit that the cases are picked, as other points connected with the operation are being noted down and will be dealt with in future numbers of the Journal.

Case 1.—At Christmas-time someone in the same hunt wrote: "The horse is a marvel. It makes absolutely no noise." And again, in January, 1911: "The horse rode a long run (2¾ hours) with the stag and never made a sound, jumping magnificently."

The owner wrote (March 27, 1912): "I think my horse was about the same this year as last, but it was somewhat difficult to judge owing to the extreme wetness of the ground."

Case 2.—From a letter received on December 20, 1911, I quote: "This year he has taken a new lease of life and is going

Number of case	Date of operation	Class of horse	Age	Description before operation	Result on first trial	Report in January, 1911	Present Report
	1909						
1	Sept. 10	Hunter... ...	10	Bad whistler ...	Excellent	Excellent	Excellent, see notes.
2	,,	,, ...	9 or 10	,,	,, ...	,, ...	,, ,,
	1910						
5	Jan. 25	,, ...	7	Bad roarer ...	Much improved ...	Can gallop freely without distress	Satisfactory, see notes.
8	Feb. 3	,, ...	10	,, ...	,, ...	Can gallop without distress, although makes noise... ... ... Second operation, Aug. 30.	,, ,,
10	Feb. 15	,, ...	6	Bad roarer ...	,, ...	Excellent	Excellent.
11	,,	,, ...	8	Bad whistler ...	Excellent	Practically cured, perhaps a little thick in wind...	Excellent, see notes.
18	April 1	,, ...	7	Roarer	Not very satisfactory	Satisfactory	See notes.
20	April 6	,, ...	...	,, ...	Good	,, ...	Satisfactory, see notes.
22	,,	,, ...	...	,, ...	Excellent	Excellent	Excellent ,,
25	April 10	,, ...	6	Bad roarer ...	,, ...	,, ...	Satisfactory. ,,
29	,,	,, ...	8	Roarer	Not good	Second operation, Sept. 29. Now satisfactory	,, ,,
31	April 15	Racer	3	Bad roarer ...	Slight whistler, but no distress ...	Slight whistler, but no distress	Satisfactory, see notes.
40	,,	Hunter... ...	5	Bad whistler ...	Excellent	Excellent	Excellent.
41	April 19	,, ...	8	Confirmed roarer	,, ...	,, ...	Excellent. Since sold for £100.

44	April 23	Hunter	9	Bad roarer ...	Excellent	Excellent	Excellent, see notes.
45	April 24	,, ...	5	Bad whistler ...	,, ...	,, ...	Satisfactory.
51	,,	,, ...	7	,, ...	,, ...	,, ...	Excellent.
53	April 27	,, ...	7	,, ...	,, ...	,, ...	,,
55	,,	,, ...	9	Bad roarer ...	Satisfactory	Satisfactory	,,
57	,,	,, ...	7	Bad whistler ...	Excellent	Excellent	Satisfactory.
58	April 30	,, ...	7	Bad roarer ...	Improved	Satisfactory	,,
64	May 4	,, ...	...	Moderate whistler	Excellent	Excellent	Excellent, see notes.
68	May 7	Van gelding ...	7	Bad roarer ...	,, ...	Satisfactory	Satisfactory.
70	May 8	Hunter	6	,, ...	,, ...	Excellent	Excellent, see notes.
71	,,	,, ...	6	,, ...	Temporarily better ...	Second operation, Sept. 9. Excellent	,, ,,
73	May 10	,, ...	16	,, ...	Excellent	... ...	,, ,,
79	May 22	,, ...	12	,, ...	Not very satisfactory	Still some noise, but hunting without distress	Satisfactory, see notes.
81	May 23	,, ...	...	,, ...	Excellent	Excellent	Excellent.
85	May 28	Harness horse ...	9	,, ...	Improved	Second operation, August 3. Now excellent.	Satisfactory, see notes.
87	May 30	Hunter	6	,, ...	Excellent	Excellent	Excellent, see notes.
89	June 1	,, ...	9	Roarer	,, ...	,, ...	,, ,,
92	June 5	,, ...	9 or 10	Bad whistler ...	Not very satisfactory	Now satisfactory ...	Satisfactory ,,
93	,,	,, ...	7	Roarer	Satisfactory	Satisfactory	,, ,,
96	June 9	,, ...	15	Bad roarer ...	,, ...	,, ...	Excellent.
97	June 10	,, ...	9	,, ...	Not satisfactory ...	Excellent	Excellent, see note on p. 213
98	June 11	,, ...	8	,, ...	Satisfactory	Satisfactory	Satisfactory.
100	June 12	Russian Orloff trotter	4	,, ...	Excellent	Excellent	Excellent.
101	,,	Russian trotter	4	,, ...	,, ...	,, ...	,,

Number of case	Date of operation	Class of horse	Age	Description before operation	Result on first trial	Report in January, 1911	Present Report
	1910						
105	June 15	Hunter... ...	6	Bad roarer ...	No improvement ...	Second operation. Improving	Excellent, see notes.
106	,,	,, ...	12	,, ...	Improved, but still makes noise	Second operation, Sept. 10. Now satisfactory	,, ,,
107	June 16	,, ...	7	,, ...	Satisfactory	Satisfactory	Satisfactory.
108	,,	,,	7	Roarer	Excellent	Excellent	Excellent.
111	June 18	,, ...	10	Bad roarer ...	Not good (2nd operation Oct. 20)	Now satisfactory ...	Excellent, see notes.
113	June 23	Shire	3	Roarer	Improved	... ...	Excellent.
115	June 26	Hunter... ...	6	,, ...	Much improved ...	Satisfactory	Satisfactory.
116	June 27	,, ...	8	Whistler	Excellent	Excellent	,,
117	,,	,, ...	...	Roarer	Satisfactory	Satisfactory	,,
118	,,	,, ...	...	Bad roarer ...	,, ...	,,	Satisfactory.
119	June 29	,, ...	12	Roarer	Excellent	Excellent	Excellent, see notes.
120	,,	,, ...	8	Bad roarer ...	,, ...	,, ...	,, ,,
121	July 1	Polo pony ...	7	,, ...	Improved	Satisfactory	,, ,,
122	,,	Hunter... ...	5	Whistler	,, ...	Excellent	,, ,,
126	July 5	,, ...	8	Bad roarer ...	Satisfactory	Satisfactory	Satisfactory.
127	,,	,, ...	9	,,	,, ...	,, ...	,,
130	July 8	,, ...	3	Roarer	,, ...	,, ...	,,
131	,,	,, ...	6	Bad whistler ...	,, ...	,, ...	,,
134	July 11	Carriage ...	7	Bad roarer ...	,, ...	,, ...	,,
136	July 14	Hunter... ...	6	Very bad roarer ...	,, ...	,, ...	,,
137	July 15	,, ...	8	Bad whistler ...	Excellent	Excellent	Excellent.
138	,,	,, ...	7	Bad roarer ...	,, ...	,, ...	,,
140	July 21	,, ...	6	Roarer	,, ...	,, ...	Satisfactory.
141	July 24	Hackney ...	5	Bad roarer ...	,, ...	,, ...	,,
145	July 28	Hunter... ...	4	Bad whistler ...	,, ...	,, ...	Excellent. Sold since for £120. See notes.
149	,,	Racer	5	Bad roarer ...	Excellent	,, ...	Excellent, see notes.
151	Aug. 2	Hunter... ...	8	Bad whistler ...	,, ...	,, ...	,,

152	Aug. 2	Hunter... ...	9	Bad roarer ...	Excellent	Excellent	Excellent.
153	Aug. 3	,, ...	10	,, ...	,, ...	,, ...	,, see notes
160	Aug. 5	,, ...	6	Slight whistler ...	,, ...	,, ...	,,
161	Aug. 6	,, ...	9	Roarer	Not good	Improving	Satisfactory.
162	,,	,, ...	7	Bad roarer ...	Satisfactory	Satisfactory	,,
163	,,	,, ...	6	,, ...	Excellent	Excellent	Excellent.
167	Aug. 9	Carriage ...	9	,, ...	,, ...	,, ...	Satisfactory.
170	Aug. 12	Hunter... ...	5	,, ...	,, ...	,, ...	Excellent, sold for £150.
171	,,	,, ...	5	Bad whistler ...	,, ...	,, ...	Satisfactory.
172	,,	,, ...	5	,, ...	,, ...	,, ...	,,
173	,,	,, ...	5	,, ...	,, ...	,, ...	,,
174	Aug. 19	Harness ...	10	Roarer	Satisfactory	Satisfactory	,,
176	Aug. 20	Hunter... ...	6	,, ...	Excellent	Excellent	Satisfactory, see notes.
178	,,	,, ...	Aged	Whistler	Satisfactory	Satisfactory	,, ,,
181	Aug. 21	,, ...	5	Roarer	Excellent	Excellent	Excellent.
182	Aug, 22	,, ...	6	,, ...	,, ...	,, ...	,,
183	,,	Shire	3	Bad roarer ...	,, ...	,, ...	,,
185	Aug. 26	Hunter... ...	9	,, ...	Satisfactory	Satisfactory	,, see notes.
186	,,	,, ...	4	,, ...	,, ...	,, ...	Satisfactory.
190	Sept. 8	,, ...	4½	Whistler	,, ...	Excellent	Excellent.
191	Sept. 13	,, ...	5	Bad roarer ...	,, ...	Satisfactory	Satisfactory, see notes.
192	Sept. 14	Trooper ...	11	,, ...	,, ...	,, ...	,, ,,
193	,,	,, ...	7	,, ...	,, ...	,, ...	,, ,,
194	,,	,, ...	6	,, ...	Excellent	Excellent	,, ,,
195	Sept. 17	Carriage ...	5	,, ...	,, ...	,, ...	,, ,,
196	,,	Hunter... ...	12	Roarer	Satisfactory	Satisfactory	,,
197	,,	,, ...	8	,, ...	,, ...	,, ...	,,
198	Sept. 18	,, ...	5	Bad roarer ...	,, ...	,, ...	,,
199	Sept. 20	,, ...	12	,, ...	,, ...	,, ...	,,
203	Oct. 1	,, ...	8	,, ...	Bad	Excellent	Excellent.
204	Oct. 4	,, ...	9	Roarer	Satisfactory	Satisfactory	Satisfactory.
205	,,	Pony	Aged	Bad roarer ...	Excellent	Excellent	Excellent.
206	Oct. 7	Hunter... ...	7	Bad whistler ...	,, ...	,, ...	,, see notes.
208	,,	,, ...	5	Whistler	,, ...	,, ...	,,
216	,,	Harness ...	8	,, ...	,, ...	,, ...	,,

like a two-year-old. He took the lead from one of our best hunters on the way home in a long run up a very steep climb."

Case 5.—"Although I am a firm believer in your operation and, if you recollect, wrote an article, which appeared in the *Cavalry Journal*, on the subject (March 21, 1912), the operation you did for me was not a 'cure' in this sense. The horse was all the better for it, and has been regularly hunted since and breathes without the distressing symptoms he previously suffered from, but he still makes a noise. There is no scar at the seat of the operation, nor does the larynx externally feel abnormally enlarged. . . . My experience has been that about 60 per cent. of the horses you have had for treatment have been a complete success, and that many others, like my own, have derived much benefit from it."

Case 8.—The owner wrote (March 21, 1912): "The bay horse (operated on twice) has been hunted regularly with the Pytchley for the last two seasons. He still makes a noise, which does not stop him, except on a hill, and grunts at the stick and at his fences. He makes rather more noise this year than last."

Case 11.—On March 26, 1912, the dealer who owned the horse wrote: "The good bay horse, which was far and away the worst case of roaring of the three, has proved a success. The gentleman who purchased the horse, after riding him with his Yeomanry, hunted him last season and this. The horse looks well, and his wind is hardly noticeable and in no way interferes with his galloping."

Case 18.—This horse developed a chronic cough, especially when feeding, and also when at exercise. On March 20 I had a letter to say that the horse had been sold in October as he had become lame, "but he did not seem to make any noise although, not being fit, he blew. He had a dry cough and ran at the nose (there used to be a lot of discharge in the bucket in the morning), and as I was unable to cure either at the time I sold him." The gentleman who bought him stated in a letter dated March 26, 1912, that the cough was still present, and that the discharge from the nostril still continued, but "I should say in his fast paces he makes little or no noise, and certainly is not stopped by it."

Cases 20 and 22.—In a letter from Mr. V——, M.R.C.V.S., dated March 26, 1912, Case 22 was stated to be quite satisfactory, and to have improved this season, whilst Case 20 was also said to have improved.

Case 25.—In February, 1911, this horse at times showed a peculiar "gulping," as if it had spasmodic contraction of the laryngeal muscles, after about a mile and a half gallop, and seemed as if it would choke if not pulled up.

In April it was again hunting regularly, and all seemed well except occasionally when these symptoms would appear. On March 23, 1911, it was decided that the right ventricle should be stripped and at the same time that the interior of the larynx should be carefully explored and examined. When this was done it was found that the left side had adhered perfectly, but

that there appeared to be an abnormal length of soft palate projecting backwards. A V-shaped portion of this was excised and the right ventricle satisfactorily stripped.

The result has been excellent, as shown by the following quotation from a letter received March 21 last:—

"The horse is very much improved by the second operation. He can now go hunting, and his wind does not appear to stop him in the least, although he makes a very peculiar guttural noise, which is very often more noticeable in his slow paces, and this also varies a great deal on different days.

————, M.R.C.V.S."

Case 31.—From a letter dated March 19, 1912: "The operation certainly did the horse's wind good, although he still made a lot of noise after it. He won a few small hurdle races after the operation, but turned cunning and would not do his best, so the owner sold him. He is at present in Ireland, so I have lost touch with him."

Case 97.*—On April 2 I received the following letter from the owner, who is the Master of a well-known pack of Staghounds: "No one can hear the horse out hunting (I have often tried), except, perhaps, the man on his back. Moreover, since Christmas the horse has been going better than ever he did in his life, staying right on, so much so that the huntsman has not used his second horse. It took a long time for the horse to recover from the chloroform and the fright, but now I should say the operation was a great success."

Case 43.—On October 18, 1910, I had a letter from Mr. H——, M.R.C.V.S.: "The groom tells me that the horse is practically, if not quite, sound. In December I heard from a well-known hunting man that the horse was now going free from noise, and was cured."

In April, 1911, the owner stated that the horse had began to get noisy again, and on June 8 I reopened the larynx and stripped the right ventricle. The left ventricle was completely obliterated and the vocal cord well adherent to the side.

On March 21, 1912, I received a letter from Mr. H——, M.R.C.V.S.: "The bay horse had done his work very well, but makes more noise since the second operation."

Case 44.—Quoting from a letter from the owner, dated March 24, 1912: "With regard to my weight-carrier which you operated on for roaring. The operation has not been a complete success, but it has been sufficiently successful to enable the horse to work without distress. The horse does not grunt when he lands over a fence; he makes a little noise in his gallop, but nothing compared to what he did before the operation. I can detect no scar at the seat of operation, and the larynx externally feels normal to the touch. You must bear in mind that you only operated on *one side*. It was painful to ride the horse before

* This note is out of rotation owing to delay in obtaining a reply from the owner. It is of especial interest, as this horse was the first one to have both ventricles stripped at the same time.

you operated on him as he made such a noise, but now I do not think it can be heard to outsiders. Unless you are on the horse yourself you do not notice it. He has carried me two seasons brilliantly since the operation."

Case 55.—From a letter received March 20, 1912, I quote: "The 'tubed' hunter you operated on for me is now a different horse, and although he still makes a noise, it does not stop him at all. I am thoroughly satisfied with the result of the operation, the horse has never been better than he is this season."

Case 70.—(March 21, 1912). The owner writes: "The mare is not absolutely silent, but she is so much improved that she can give me a good day's hunting without distress. I could not warrant her sound, as she grunts a bit over a fence, but for all purposes, bar selling, I should call her sound enough."

Case 73.—On March 22 last Mr. B——, M.R.C.V.S., wrote: "Colonel M——'s horse is going as well as ever. He is now 18 years old, and a few weeks ago Mr. M—— jumped two sets of ornamental iron fencing into a park on him, after a tiring run of 1½ hours. You can only just hear him."

Case 79.—From a letter, dated March 23, 1912, the following is quoted: "I cannot say that the operation on my chestnut hunter has been a *complete* success, as he still makes a noise, though there is little doubt that he is much better in his wind than he would have been had not the operation been performed on him. He does not grunt at all, as far as I have noticed, and I think that the further he goes, and the more he gallops, the less noise he makes. It generally finds him out if he gets into deep ground. I do not think that the scar is noticeable at all, and the larynx may be a bit hard externally just there, but very little indeed. I understand that Mrs. H—— is very pleased with the horse you did for her."

This horse was operated upon for the left ventricle only on May 22, 1910, and hunted satisfactorily for one whole season, but still made a good deal of noise, although there was no distress. On April 11, 1911, the larynx was reopened and the right side stripped satisfactorily.

Case 81.—From a letter dated March 21, 1912, I quote: "My horse, which you operated on for his wind, was a bad roarer, and now he is practically quite sound. I should not say that anything could be detected at all, but he certainly grunts both at the stick and sometimes on landing over a fence; otherwise he appears to be quite right in his wind, even when galloping hard."

Case 85.—Mr. C. H——, M.R.C.V.S., writes (March 20, 1912): "The horse makes just as much noise now as he did last season and at the beginning of this. He has not varied at all, and, as far as I can judge, never will. He has done plenty of work, and probably goes just as fast and stays as well as if he did not make any noise. He does not get distressed after a sharp burst any more than other horses which are sound in wind. He is a lot better than he was before the second operation."

Case 87.—On November 28, 1911, I received the following letter: "I know you will be interested to hear about my brown horse, which you operated on on the Monday in Derby Week, 1910. As you may remember, he was a very bad whistler before being done, but since the operation he has been absolutely cured, and even in the very heaviest going out hunting, and also cantering on a small circle in the school with a bellyful of water inside him, has not made the slightest whisper. He has also been passed sound by Mr. ——, M.R.C.V.S., but I consider even a greater proof than this of the absolute cure is the fact that he never missed his turn all last season, and I generally rode him on a Grafton Monday, with the going as deep as could be, and he never made a sound. As to treatment subsequent to the operation, I had him home from your place three weeks after it was done, and I had him regularly exercised, but never out of a walk, for three months. I then galloped him five furlongs up hill, and, to my intense pleasure and surprise, found him sound. I have just sold the horse, because he is too much quality for this country, and can assure you he is still perfectly sound. I might also mention I have seen well-known London veterinaries feeling for the scar of the operation and being none the wiser!"

Case 89.—This mare made a very slight sound at the end of the season of 1911, and, as the owner wished to try to get her completely noiseless, the right ventricle was stripped on May 11, 1911. On December 6, 1911, the owner reported that the mare hunted well and without distress, but that she made a little more noise than before the second operation was done.

Case 92.—The owner wrote (March 23, 1912): "The horse operated on for his wind is undoubtedly improved by it, though he still makes a noise. He can gallop with comfort to himself. He has been hunted now for two seasons since the operation, and, if anything, he is a little better now than he was at first."

Case 93.—This horse hunted without distress, but still made a noise, so, after last season, was operated upon the second time, the right ventricle being stripped satisfactorily. The left ventricle was quite obliterated, and the vocal cord had adhered perfectly. From a letter received in February, 1912: "The hunter makes a noise still. I do not think that doing the second side has made any difference. Of course, he is much better than before he was done at all."

Case 105.—This horse was a very bad roarer, and the case was exceptionally interesting, as, after the stripping of the left ventricle, there was no improvement in the noise made, although there was considerably less distress. On September 10 the right ventricle was stripped, and in April, 1911, the noise had so entirely disappeared, and the animal could gallop so freely and well, that it was sold and was passed by one of the best hunting veterinary surgeons in England without comment. The good result has still been maintained.

Case 106.—This horse was hunted satisfactorily one season after the left ventricle was stripped, but still made a noise.

On September 10 the right ventricle was stripped, and on December 27, 1911, Mr. P——, M.R.C.V.S., wrote: "I gave the hunter a good 2½ miles' gallop on Thursday, and he did it all right. At first, after the second operation, we were disappointed, but a great improvement set in when the horse got condition. After his 2½ miles he was not at all distressed, and the noise ceased in just under 30 seconds (by the watch)." On April 19 Mr. P—— again wrote: "The horse is now practically noiseless, and ran well, coming in fourth, in the point-to-point races." On May 5 the owner wrote: "The operation is very satisfactory," and in a letter dated March 23, 1912, the owner said: "My opinion of the operation you did to my horse was that it was most successful; he did not grunt, and you could hardly hear a sound when he was fit, and he was never distressed by the deep going; before the operation he was. You cannot detect any scar at the seat of the operation, and the larynx externally is normal to the touch.

"I saw Mr. A—— this morning on the horse you operated on for him. He told me it had carried him 'top hole' all the season, and his wind never stopped him now; it did before the operation."

Case 111.—Mr. P——, M.R.C.V.S., in a letter dated March 22, 1912, writes: "B——'s horse has hunted hard all this season. He can live with the best of them in this heavy country. He still makes a noise of sorts, but is not stopped by it at all. With regard to the last two, my own mare was tried at the end of six weeks. I found her much improved, but that she still roared. She was put away for another six weeks, and has worked regularly ever since. She still makes a noise when pressed up a hill, but from being an animal only fit for the knacker (for she could not pull an empty light trap up a hill) she is now a most useful harness mare. The other mare, a much younger animal, has not yet been put into harness. She was a bad roarer when lunged, but now there is hardly any noise perceptible."

Cases 119, 120, and others.—In a letter dated March 21, 1912, Mr. H——, M.R.C.V.S., writes: "Colonel F——'s horse was bought by Colonel K——, and has been going very well indeed and makes no noise. Lord L——'s has hunted all the season. He still makes a good deal of noise, but does his work quite well and stays; he was quite useless before. Lady W——'s chestnut horse has done a very hard season, and is practically sound in his wind. Mr. G——'s goes as well as ever, and is still quite satisfactory. Mrs. L——'s horse I have not heard of since Christmas, when he was going well, and she was quite satisfied."

Cases 121 and 122.—See notes appended to Case 192.

Case 145.—On March 24, 1912, I received a letter to say: "You will be interested to know that the horse was bought last week for £120, and was passed sound by Mr. ——, F.R.C.V.S."

Case 149.—This horse won one of the races at the Folkestone Meeting on March 6.

Case 151.—In a letter dated March 21, 1912, the owner writes: "I have great satisfaction in informing you that the horse has done two seasons' hunting, generally two days a week, and is absolutely sound in his wind, but sometimes, when jumping or landing over a drop, he will grunt. I consider the result of the operation to be highly satisfactory."

Case 153.—Mr. C——, M.R.C.V.S., writes (March 22, 1912): "I saw Mr. M——'s hunter to-day, and the noise is so slight it is almost imperceptible; in fact, he blows more like a horse that is not in condition. He does not grunt now landing over his fences, as he used to do, and, besides, he has put on flesh and feeds far better, as before the operation he was always a delicate feeder and kept very thin in condition. He can now hunt all day long and keep with hounds, and never get blown or exhausted."

Case 161.—This horse had worn a tube for about a year, and did not improve at first after the operation, but in March of this year Mr. H——, M.R.C.V.S., said that the animal had gone through this season quite to the owner's satisfaction without the tube. There was no distress, and he could go along all the time brightly and briskly, whereas before he was always sluggish and distressed.

Case 165.—December 8, 1911. The veterinary surgeon in whose district this case was operated upon informed me that the horse was hunting well and satisfactorily, with scarcely any noise, but that he still grunted when jumping.

Cases 176 and 178.—On March 21, 1912, I got a letter from the veterinary surgeon in whose district the horses were operated upon to say that both these horses "have been hunting all the season. They are better, but, I believe, not cured. I understand that young horses do well if operated upon when whistlers."

Case 185.—On February 2, 1911, Major W——, F.R.C.V.S., wrote: "He is practically sound. I think many people could ride him and have no idea that there was anything the matter. He grunts at his fences, and makes a slight noise galloping up a steep hill. I have hunted him myself, and I do not think his wind stops him a bit."

Case 191.—Mr. Y——, F.R.C.V.S., wrote (February 6, 1912): "The grey horse is a great success as far as a hunter is concerned. Before he could not gallop a field without distress; now he carries a heavy man at the top of the hunt without any inconvenience. He would not, however, quite pass for his wind, as he makes a noise like blowing through a pipe."

Cases 121, 122, 192, 193, and 194.—Major D——, M.R.C.V.S., wrote on November 24, 1911: "The troop horses returned satisfactorily to their work, whereas they were on the cast list before for their wind. One became absolutely sound in wind; I gave him most severe tests. The other two were much improved, although at a gallop they made some noise. It was a totally different sound—not so objectionable as the sound made by a roarer—and they could work without distress. Before

operation each horse soon became distressed, and was useless for cavalry work. Of the others, each has done well, the polo pony especially. Before the operation I tested it myself, and the animal could not gallop across the ground. Since then it has played in every important match in London this season, and although it still makes some noise, it is not distressed, and the noise is not objectionable.

"The hunter mare, 'Maid of the Mist,' has since won the 1st Life Guards Regimental Steeplechase this year at Hawthorne Hill, and does not make the slightest noise; in fact, she has changed hands twice since the operation, and on each occasion been passed by a different veterinary surgeon, without the slightest comment upon her wind. Before the operation she was a distinct 'roarer,' and had been twice stopped for her wind by different veterinary surgeons, once being returned from Tattersall's for this unsoundness. By-the-bye, the polo pony was sent up to Tattersall's, with others, after the polo season this year, but Captain —— bought this particular pony in for £150. He told me himself he would not let it go under £200."

Case 195.—March 23, 1912. "I have tested the big horse you operated upon, and he is fit for any duty we may want him for."

Case 205.—This old pony died in January of this year, but up to the time of his death remained, according to the opinion of two veterinary surgeons who knew the animal well, perfectly noiseless and, indeed, "sound in wind" up to the last.

Case 206.—In a letter dated March 28, 1912, the owner writes: "The operation has not been a complete success, nor is the horse sound in wind, but he has been immensely improved by the operation. His wind used to stop him before the operation on a hill; it now does not. Although he makes a bit of noise after a while, he will carry me through a run well. I think I may say that it has been sufficiently successful to enable the horse to work without distress on good going, but not without noise on any going. At first the horse was very much worse, and made a terrible noise, but it gradually lessened until it was nearly silent. . . . The horse sometimes grunts on landing over a fence, but not always. . . . I am extremely pleased with the operation, and although it has not made my horse sound, it has improved him to such an extent that I can ride him to hounds with pleasure, instead of having to put him into harness."

Clinical Articles.

THE OPEN-AIR TREATMENT OF EQUINE PNEUMONIA.

By W. LOTHIAN, M.R.C.V.S.
Duns, Berwickshire.

Indexed B. A. U.

In the month of November last we had an outbreak of influenza of a very bad type amongst farm horses, nearly every case being complicated with pneumonia. The pneumonia in many cases was extensive, and often both lungs affected; was characterized by great debility, prostration and loss of flesh.

The treatment consisted of simple fever powder being put well back into the mouth with a spoon, ½ gr. strychnine given hypodermically to impart strength to the weak heart and pulse, comfortable clothing and fresh air. Certainly nothing new. The point I wish to lay stress or emphasis on is the important part fresh air seemed to play in the treatment. It seems late in the day now to dilate on its value. Students of the late New Veterinary College, Edinburgh, thirty years ago will remember how enthusiastic the late Principal W. Williams was on its value when lecturing on the treatment of pneumonia, and Professor Williams was, without doubt, one of the veterinary giants of his day.

A comfortable loose box then was regarded as an essential, but what was carried out at one farm almost disproves that. On this, a hill farm, fourteen horses were stabled in a large, comfortable stable with plenty air space. Some eight horses were affected with pneumonia, two very badly. These two were taken out of their comfortable surroundings and put into the inside portion of a large cattle court. The court had two openings, each about 10 ft. wide, and a gate was fixed across each opening to keep the horses inside; so it will be easy to understand they were well supplied with fresh air. A cold, windy day in the month of November, horses with a high fever removed from their comfortable conditions and placed almost in a perfect draught of wind and cold, although comfortably clothed before removing, did not excite much admiration for the treatment on the part of the owner. However, the result justified it, and next day both horses were immensely improved, and made a rapid recovery. The farm was sixteen miles distant and few visits

were made, but the farmer, a rather keen observer, put the horses back into the stable as they got better, and others not improving were put into the court. The horses left in the stable did not improve; some got worse until put out into the open. At another farm two horses were very bad with double pneumonia. One required to be lifted up in the stable before we got it helped outside. I certainly thought there was no hope for them. My assistant saw them late the night before, and also thought them fatal cases. Both recovered after being shifted into open courts with a gate before them and exposed to the fresh winds.

All the other cases on other farms were treated in a similar manner with equally satisfactory results. One owner required a little persuasion before his consent could be obtained.

The above goes to prove what I have seen several times before, that one need never hesitate to remove a horse with pneumonia and high fever into cold, airy or even draughty places, if properly clothed. There is no medicinal agent that could have given the quick, decisive effect in all these cases such as was noticed in the almost immediate improvement that took place on removal to where the animals came in contact with the open air, and it is just possible we are yet a little slow to fully realize its real curative powers when fearlessly given.

FŒTUS AMORPHUS.

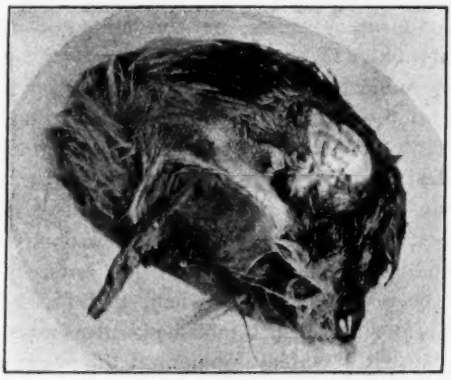
By JOHN LINDSAY, M.A., M.D.

Professor of Physiology in the Veterinary College, Glasgow.

The specimen was expelled from the uterus of a cow after the birth of a full-time calf. Ovoid in form with a long diameter of 4½ in., and a short one of 2¾ in., it was covered with hair of a reddish-brown colour over about half the surface, and white over the other half. At the insertion of the umbilical cord there was a hairless area of thin skin, and adjacent to it another smaller area also hairless with irregular nodular projections.

The interior consisted mostly of fibro-fatty tissue having running through it, without any discernible arrangement, strands of voluntary and involuntary muscle fibre. There were also one or two nodules of hyaline cartilage. In the centre were two masses, each about the size of half a walnut, of lymphoid tissue, the arrangement of which resembled that of a lymphatic gland.

The specimen belongs to that group of monster forms which are conveniently designated "placental parasites." These occur only along with a twin fœtus, which is usually normal and living at birth, or which has lived at least into a comparatively late period of pregnancy. Such twins originate from a single ovum and are enclosed in the same chorion. This mode of origin, however, does not in itself lead to the mal-development; for uniovular twins may and do develop well, and are generally perfectly fitted for post-natal life. But the enclosure of two embryos in a common chorion renders possible that relationship between them on account of which one is reduced to the status of a



Fœtus Amorphus.

parasite upon the other. This special relationship is the intercommunication of the placental circulations through the anastomosis of some of the vessels. In itself it is of no consequence, but if along with it there be a notable difference in the power of the two sets of pumps which drive the blood through the channels that communicate with each other, then, on hydrodynamic principles, a particular result is inevitable. Let there be anastomosis between the umbilical arteries of the two embryos, and let the blood-pressure be higher in the one system than in the other, it follows that the intravascular pressure will be higher at the distal end of the umbilical arteries of the weaker embryo than at the proximal end, and the flow will therefore be towards the heart and in a direction opposite to the normal. But this backward-flowing blood has already

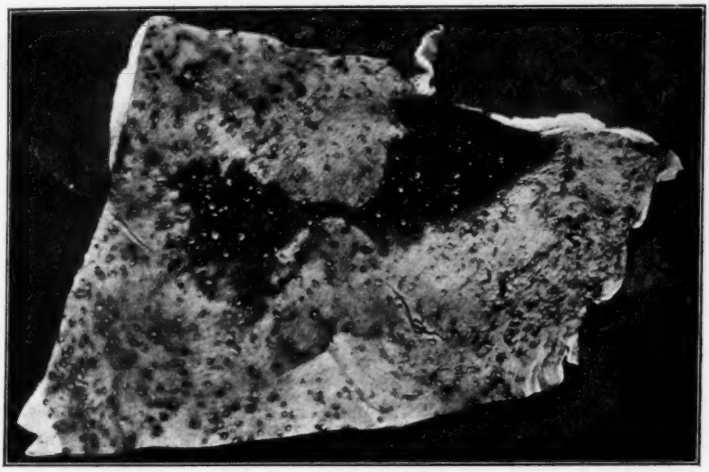
circulated through the stronger embryo; its nutritional value is impaired, and the nutrition and development of the weaker embryo suffer in consequence. These evil effects are greater or less according to the time when the inequality between the twins becomes effective in bringing about a retardation or reversal of the circulation in one of them. Hence we meet with malformed twins presenting a wide range in their departure from the normal. At one end of the scale are monsters which show only comparatively trivial abnormalities affecting the limbs and the heart, the cardiac defects, however, being sufficient to render them non-viable. In the middle of the series we find forms consisting of an ill-developed head with or without a rudimentary trunk, or consisting of a pelvis and posterior limbs only. At the other end of the scale are forms, such as the subject of the present report, which present scarcely any of the external features of the animal body, and scarcely any trace of internal organisation, and which are quite fairly described as amorphous. Now, unless we assume that organs already formed may undergo demolition—a large assumption indeed—we must suppose that an amorphous fœtus dates from a period in development when the bodily configuration has not yet been sketched, and when, therefore, the allantoic circulation has not yet been established. An embryo, or rather blastocyst, arrested in its development at this stage could secure its further growth and the maintenance of its tissue life only by establishing itself as a parasite on its twin, and that presumably through the medium of the vessels of its yolk sac. Were it not for its parasitism the amorphous fœtus would disappear in the early days of pregnancy.

ERUPTIVE SKIN DISEASE OF THE PIG.

By THOMAS PARKER, F.R.C.V.S.
Veterinary Officer of Health, Newcastle-on-Tyne.

The carcase of a hog pig weighing about 6 st., which had been completely dressed for the butcher and therefore scalded and scraped, was found to be affected with a not very common skin disease limited, in this case, to the upper and inner aspect of both thighs. On examination the affected parts were found

to be studded with spherical or oval-like formations, the upper half of each protruding above the skin surface, thus forming tubercle-like eminences. These varied in size from that of a pin head to that of a small pea. On emptying the tubercles, small, pit-like depressions were observed. Each tubercle contained a quantity of liquid and besides a small mass of fatty-like material which was found to contain one or more hairs in coil fashion. Under the heading of granular eruption the condition



Photograph of a portion of Skin showing the Eruptive Patches.

is described by Kitt as atheromata of a minute size; Johne and Ostertag as multiple dermoid cysts, and by Olt as a disease of the sweat glands due to coccidia (Ostertag). A piece of the affected skin was sent to Sir John McFadyean, who kindly examined it and informs me that the lesions, although not very common, have frequently been described; that the cause of them is not known; and finally, that objects identified as coccidia have been described as occurring in them, but that is not generally credited. The carcase being otherwise normal, it is, perhaps needless to add that, after removing the affected parts, it was passed as quite fit for human food. The enclosed photo is about half the normal size of the actual specimen.

Canine and Feline Clinicals.

A CASE OF FOLLICULAR MANGE CURED.

By F. MORTON WALLIS, M.R.C.V.S.

Halstead, Essex.

Indexed B. A. C.

The patient was a Scotch terrier, 7 or 8 years old, and had follicular mange of a very chronic character. It was admitted to hospital on January 14, 1909, and was under treatment here until February 15, then at home two or three times a week for two weeks. No further trouble has occurred since. The treatment adopted was as follows: The skin was shaved, and then well cleansed with soap and water and dried twice daily, and afterwards dressed with the following lotion:—

℞	Ac. sulphurosi	ʒii
	Zinci chlor.	gr. lxxx
	Aquæ	ad. ʒviii

When any of the pustules broke I inserted a solid stick of silver nitrate in the hole and applied it thoroughly.

ATRESIA OF THE VULVA OF A BITCH.

By GEO. H. WOOLDRIDGE, F.R.C.V.S.

Professor in the Royal Veterinary College, London.

On February 12 a small nondescript terrier bitch, 15 months old, was brought to me with a swelling in the perineum which had been noticed for several days. It was accompanied by a certain amount of straining. On examining the animal I found that the vulval orifice was represented by a very small puncture about one millimetre in diameter, and it was obvious that she had been accustomed to pass her urine into the vulvo-vaginal passage, from which it dribbled very slowly. The irritation thus set up was probably the original cause of the swelling and the straining, and was no doubt intensified by the fact that the bitch was in œstrum.

A simple operation was decided upon and carried out after suitable preparation. The puncture was situated at what would represent the superior commissure of the vulva. Into this a fine grooved director was inserted and the point turned downwards, in which direction it passed easily for the distance of about half an inch. An incision was then made to that extent, revealing an apparently normal vulvo-vaginal cavity. To prevent the opening

cicatrizing and again occluding the orifice, fine sutures were inserted securing contact and union between the skin and vulval mucous membrane of the respective sides. The patient made a rapid recovery.

Such cases are extremely rare and do not appear to present any serious difficulty in treatment. In this case, however, it is remarkable that the condition was not observed before the bitch attained the age of fifteen months, the explanation being that the atresia was not quite complete.

COMPLETE TORSION OF THE INTESTINE IN A DOG.

By H. P. LEWIS, M.R.C.V.S.

Chelmsford.

THE patient was an Irish terrier, aged about six years, apparently in good health the night before when the owner saw the animal. It was found dead in the kennel, and the body was sent to me for *post-mortem* examination, as poison was suspected. Upon opening the abdomen, the cause of death was obvious, as the small intestine was twisted several times upon itself. In fact, it was a complete tangle, and it was impossible to undo it without the use of the scalpel.

Torsion of the intestine in the horse is a common occurrence, but the rarity of this condition being reported in canine patients makes the case of unusual interest.

A CASE OF GERSUNY'S WAX OPERATION FOR PROLAPSED RECTUM.

By FREDERICK HOBDAY, F.R.C.V.S.

Kensington.

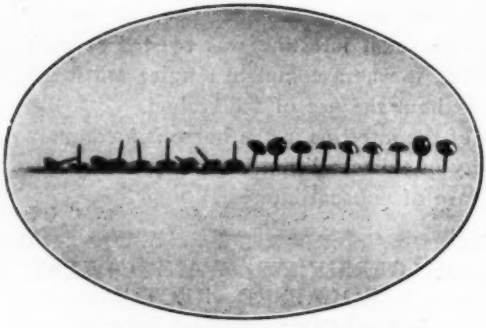
ON February 15 I was consulted by Mr. R. H. Stephenson, M.R.C.V.S., of Southsea, in reference to a well-bred bull bitch, 2½ years old, whose rectum was persistently prolapsed. She had been taken to Mr. Stephenson on January 27, and at that time fully three inches was showing. After some manipulation this was returned, the anus sutured, and the bitch kept quietly in a kennel. On January 28 the bowel again protruded, and was returned, and on this occasion fresh sutures were put across the anus. Between this date and February 15 the bowel came out three times, and when she arrived at hospital in Kensington a suture was *in situ*. Two days later the suture

gave way, and the bowel again became prolapsed to the extent of fully three inches, the rectum being completely everted. On this date Gersuny's wax operation was performed under cocaine and adrenalin, after an hypodermic injection of morphia, four excellent pillars of wax being inserted between the mucous and serous coats of the bowel before the bowel was returned. No further trouble resulted, the bitch began slowly to put on flesh (she had become a perfect wreck) and on March 1 she left hospital. Progress since has been uninterrupted.

LARGE-HEADED NAILS SWALLOWED BY A DOG.

By G. W. D. SARJEANT, M.R.C.V.S.
Edinburgh.

My attention was called to a young dachshund which was suffering from pneumonia, and to which I thought it necessary, amongst other treatments, to apply a counter-irritant to the



Nails swallowed by a dachshund.

sides. In the excitement which followed, as a result, he commenced to pick a number of nails out of the side of his box, and swallowed them one by one. I was telephoned for as soon as the owner discovered it, about an hour and a half after it had occurred. I advised giving a quantity of stiff suet pudding, and as soon as this was made we gave the dog about half a pound of it. Some of it was eaten voluntarily, and the rest put down the throat in bolus. On the following morning I administered an oleaginous purgative, and about half an hour afterwards the nails shown in the photograph coated with partially-digested pudding were passed. No untoward complications occurred, and the animal made an excellent recovery.

AN INTERESTING ANATOMICAL VARIATION IN A CASE OF "PUS IN THE ANTRUM."

By FREDERICK HOBDAY, F.R.C.V.S., and GUY SUTTON, F.R.C.V.S.
Kensington, W.

About two months ago a client consulted us with reference to a Yorkshire terrier dog, 6 years old, which had been suffering for some considerable time with a discharging wound on the surface of the right cheek, just under the eye.

This had been treated and, temporarily, the wound would heal, breaking out again and again every few weeks.

A diagnosis of "pus in the antrum" was made and extraction of the offending molar was advised. As a rule, the one to be extracted is the last but one, but in this case, upon passing a fine probe into the sinus on the cheek and examining the mouth with a speculum at the same time, the *last* molar could distinctly be made to move. This was extracted and the probe now passed freely into the mouth. Recovery was uninterrupted and permanent.

Veterinary literature does not usually attribute a diseased condition of the *last* upper molar as the offending agent in these instances, so that the case is of interest from an anatomical, as well as from a surgical, point of view.

AN ENORMOUS CHONDROMA OF THE RIGHT FORELIMB OF A CAT.

By GEO. H. WOOLDRIDGE, F.R.C.V.S., M.R.I.A.
Professor in the Royal Veterinary College, London.

On February 17 an aged half-bred Persian cat was brought to me as an out-patient with an enlarged right shoulder, the enlargement being due, apparently, to a growth about four or five times the size of one's fist between the humerus and scapula and the chest wall. The lower portion of the limb was completely paralysed, owing to mechanical interference with the nerve supply. The foot had been dragged along, and the skin thus denuded from the carpus and metacarpus, and an infected wound produced. The shoulder had been first noticed enlarged in September, 1911, and the enlargement had increased very slowly until after Christmas. Since then it had grown very rapidly. The cat was extremely weak, and as the condition was regarded as inoperable I advised the lethal chamber. The owner,

however, preferred palliative treatment, and promised to bring me the carcase if the cat died. The body was accordingly brought to me on February 29, having died the previous night.

On making a *post-mortem* examination, it was found that the forelimb was easily dissected from the chest wall, and was in no way adherent to it. On cutting into the tumour mass it appeared cartilaginous until nearing the bone, when spicules of bone were encountered. Microscopic examination revealed the growth to consist of numerous islets of cartilage tightly packed in strands of connective tissue. The growth was cut from the bones, and on weighing was found to be four pounds, or almost as much as the rest of the cat. The bones were boiled, and it was seen that there was extensive periostitis with bony deposition all round the upper extremity of the humerus and all down the anterior face of the shaft forming a prominent ridge. A similar condition, but less extensive, was found on the upper halves of the radius and ulna including the olecranon process. The scapula was also affected, the worst portion being the supraspinatus and infraspinatus fossæ and the coracoid process. In no case were the articular surfaces affected. There was no evidence nor history of any primary injury to the bones.

SUPPRESSION OF QUACKERY IN BELGIUM.

The Law Tribune at Liége has recently fined a cattle dealer the sum of 53 frs., with costs, for having on several occasions treated cattle suffering from foot-and-mouth disease. His remedy consisted of a mixture of chalk, pepper, camphor, and starch. He charged from 20 to 60 frs., and in the case of one client who employed him he took, as reward for his services, the wool of two sheep, which he sheared himself. Proceedings were taken against him at the instance of the veterinary inspector of the district. The new Cruelty to Animals Act will occasionally enable proceedings to be taken against quackery in England, especially when irritant drugs are administered internally, or used injudiciously externally. Specific instances have only to be brought before the College Council to receive support and attention.

VETERINARY ACT OF WESTERN AUSTRALIA.

ANNO SECUNDO
GEORGII QUINTI REGIS,
VII.

No. 51 *of* 1911.

AN ACT to regulate the Practice of Veterinary Surgery, and for other relative purposes.

[*Assented to December* 31, 1911.]

BE it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and the Legislative Assembly of Western Australia, in this present Parliament assembled, and by the authority of the same, as follows:—

1. This Act may be cited as the *Veterinary Act*, 1911, and shall come into operation on the first day of January, 1912.

2. In this Act, unless the context otherwise requires,—

"Board" means the Veterinary Board constituted under this Act.

"Diploma" means any diploma, certificate, or other document granted by any college, corporation, or other body recognized for the time being by the Board.

"Minister" means the responsible Minister of the Crown for the time being charged by the Governor with the administration of this Act.

"Prescribed" means prescribed by Regulation.

"Register" means the register of Veterinary Surgeons hereinafter provided for.

"Registrar" means the Registrar appointed by the Board under this Act.

"Regulation" means a regulation made under this Act.

"Registered Veterinary Surgeon" means a person whose name appears in the register.

"Veterinary Surgery" means the art and science of veterinary surgery and medicine.

The Veterinary Board.

3. (1) For the purpose of this Act, there shall be constituted a Board to be called the Veterinary Board, and such Board shall consist of five members to be appointed from time to time by the Governor.

(2) The Board shall be a body corporate by the name of the *Veterinary Board of Western Australia* with perpetual succession and a common seal, and may by that name sue and be sued and hold real and personal property.

4. (1) Except as hereinafter provided, every member of the Board shall hold office for a period of one year from the date of his appointment, unless he dies, resigns, or is removed from office, in any of which events a successor shall be appointed who shall

hold office for the unexpired term of his predecessor's term of office.

(2) Subject as aforesaid, a person who has been appointed a member of the Board shall be eligible for re-appointment.

(3) An appointment to fill any place on the Board to become vacant by effluxion of time may be made not more than one month before the place is to become vacant.

5. A member of the Board may be removed from office by the Governor, at any time.

6. (1) The Board shall, with the approval of the Minister, choose a member to be chairman of the Board; and as often as the office of chairman becomes vacant the Board shall, with the like approval, choose a member to be chairman.

(2) The chairman shall, subject as hereinafter provided, hold office for one year, but shall be eligible for re-appointment. He shall cease to hold office if he ceases to be a member. He may be removed from office, with the consent of the Minister, by a vote of the Board.

(3) Before or during any absence of the chairman the Board may choose a member to perform his duties and exercise his powers in his absence as vice-chairman.

7. (1) The first meeting of the Board shall be held at such time and place as the Minister by notice in the *Government Gazette* appoints.

(2) Other meetings of the Board shall be held at such times and places as the Board from time to time appoints.

(3) The chairman of the Board, or a majority of the members thereof, may at any time call a special meeting of the Board.

(4) It shall be the duty of the registrar or chairman of the Board to call a special meeting of the Board at any time when requested so to do by a requisition in writing under the hands of a majority of the members of the Board.

8. (1) At every meeting of the Board the chairman, if present, shall preside.

(2) If the chairman and vice-chairman are absent from any meeting, or if there is for the time being no chairman and no vice-chairman, the members present shall choose one of their number to act as chairman at that meeting, and the member so chosen shall have the same powers at that meeting as if he were the chairman of the Board.

9. (1) Every question before the Board shall be decided by the votes of a majority of the members present.

(2) The chairman shall have a deliberative vote, and in any case in which the votes are equal a casting vote also.

(3) No business shall be transacted at any meeting unless at least a quorum of members is present thereat during the whole time at which the business is transacted.

(4) A quorum shall consist of a majority of the members of the Board for the time being.

10. The Board may from time to time appoint a registrar, and such other officers as they may deem necessary for the purpose of carrying out this Act, and shall have power to remove any such officer at any time.

11. The establishment of the Board and the validity or legality of acts done by the Board shall not be affected by any error or defect in the appointment of any member of the Board, or by the fact that the full number of members has not been appointed.

12. (1) The Board may, with respect to matters within its jurisdiction, examine or cause to be examined on oath or solemn affirmation any person appearing before it, and for that purpose the chairman or registrar may administer or receive any oath or affirmation.

(2) The chairman or registrar of the Board may by writing under his hand summon any person to attend before the Board for the purpose of being examined with respect to any matter within the jurisdiction of the Board, and every person duly summoned as aforesaid who does not attend after reasonable expenses have been paid or tendered to him, or attending refuses to be sworn or to make a solemn affirmation or to be examined or to give evidence or to answer all such questions as the Board may legally ask or cause to be asked of him, shall be liable to a penalty not exceeding ten pounds.

The Register.

13. The Board shall from time to time cause the names of all duly qualified persons applying for registration under this Act to be registered, together with their respective places of residence and a description of their respective qualifications, in a register to be kept by the Board for that purpose in the prescribed form, and such register shall be called the *Veterinary Register of Western Australia*.

14. Before examination or registration under this Act, such fees shall be payable as may from time to time be determined by the Board by regulation. Such fees shall be paid to the registrar for the use of the Board for the purposes of this Act.

15. The Board may from time to time make any necessary alterations in the registration of the place of residence and qualifications of any registered veterinary surgeon and may from time to time cause the registrar to send a letter to any registered veterinary surgeon, addressed to him at his address appearing in the register, and if no answer to such letter be received within two months after the due posting of the letter then the Board may cause the name of such surgeon to be removed from the register; but such surgeon's name shall be restored to the register upon his personal application and the production of his certificate or satisfactory proof of his former registration.

16. The registrar shall remove from the register the name of any veterinary surgeon whose death shall be proved to the registrar's satisfaction; but whenever it shall appear to the Board that any name has been removed under this section in error, the Board shall direct the registrar to restore such name, and he shall restore it to the register accordingly.

17. If any registered veterinary surgeon shall, after due inquiry, be adjudged by the Board to be incompetent or to have

been guilty of misconduct as a veterinary surgeon, the Board may direct the registrar to remove the name of such surgeon from the register.

Provided that the Board may, if it thinks fit, restore to the register the name of any surgeon whose name has been removed therefrom.

18. (1) Any person who thinks himself aggrieved by any decision of the Board in refusing to enter his name in the register, or in removing his name from the register, may within three months after the date of the decision appeal to a Judge of the Supreme Court.

(2) The Judge may make such order as he thinks just (including any order as to costs), and such order shall have effect according to its tenor and shall be final.

19. A copy of the register shall, in the month of January in each year, be published by the Board in the *Government Gazette*.

20. Any copy of the register purporting to be certified by the registrar or a *Government Gazette* containing what purports to be a copy of the register shall, in all Courts of law, *be prima facie* evidence that the persons therein named were at the date of the certificate or *Gazette* and are registered veterinary surgeons, and the absence of the name of any person shall be *prima facie* evidence that such person was not at the date of the certificate or *Gazette* and is not so registered.

Registered Veterinary Surgeons.

21. (1) Every person shall be entitled to be registered in the register under this Act who proves to the satisfaction of the Board that he—

(*a*) Has attained the age of twenty-one years;

(*a*) Is a person of good fame and character; and

(*c*) Holds a diploma of competency as a veterinary surgeon from the Royal College of Veterinary Surgeons of Great Britain, or from some other college or institution recognized by the Board, or has passed a prescribed examination to the satisfaction of the Board.

(2) Where at the passing of this Act any person practises and has continuously for not less than five years before the passing of this Act practised veterinary surgery in Western Australia the Board may, until the 31st day of December, 1912, enter his name as a veterinary practitioner in a portion of the register to be headed "Veterinary Practitioners."

(3) Every person whose name is so entered as a veterinary practitioner shall, whilst his name continues so registered, be deemed for the purpose of this Act a registered veterinary surgeon.

Provided, however, that no such person shall in any advertisement or on any name plate or sign, or by means of any written or printed matter advertise or hold himself out as a registered veterinary surgeon unless it is made to appear in such advertisement, plate, sign, or written or printed matter, that such person is registered as a veterinary practitioner only. Save as in this

section provided, no person shall be registered as a veterinary surgeon under this Act.

22. (1) Every registered veterinary surgeon shall, on payment of a fee of one shilling, be entitled to obtain from the Registrar a certificate stating that he is so registered, and setting out the qualifications by virtue of which he is registered.

(2) In the case of a certificate issued to a person qualified as provided in subsection (1) of section twenty-one, the certificate shall be called a "certificate of competency," and shall state that such person is registered as a competent veterinary surgeon.

(3) A certificate issued to a veterinary practitioner shall be called a "certificate of practice," and shall state that it is issued to the practitioner without any proof of competency having been furnished by him.

(4) Every such certificate shall be *prima facie* evidence of the matters therein stated.

23. Every registered veterinary surgeon may, whilst so registered, sue in any Court of law of competent jurisdiction for the recovery of his fees or other remuneration for professional services whether medical or surgical.

24. No person other than a registered veterinary surgeon shall (subject as hereinafter provided) be entitled to sue or counterclaim or set-off or recover any charge or remuneration for any veterinary advice, attendance, service, operation, or medicine.

Offences.

25. (1) Except as hereinafter provided, from and after the first day of May, one thousand nine hundred and twelve, no person other than a registered veterinary surgeon shall be entitled to—

(*a*) Practise veterinary surgery in any of its branches or perform or give for reward any veterinary service, operation, or advice; or to

(*b*) Advertise or hold himself out as being a registered veterinary surgeon; or to

(*c*) Advertise or hold himself out as being entitled or qualified to practise veterinary surgery or to perform or give any veterinary service, operation, or advice.

(2) Every person who does or permits any act, matter, or thing contrary to this section shall be liable, upon conviction, to a penalty not exceeding twenty pounds.

Provided, nevertheless, that nothing herein shall make it illegal for any person to perform for reward the operation of castration, spaying, or dehorning on any animal or the tailing of lambs.

(3) Any person other than a registered veterinary surgeon who shall advertise or hold himself out as being a registered veterinary practitioner shall be deemed guilty of an offence under this section and liable to the penalty mentioned in subsection two.

(4) Any person who shall by act or omission contravene the proviso to subsection three of section twenty-one shall be liable on conviction to a penalty not exceeding ten pounds.

(5) Every person who exhibits or publishes any letter, circular, card, or advertisement of any kind whereby any person holds himself out contrary to any part of this section or section twenty-one shall be liable, upon conviction, to a penalty not exceeding five pounds.

Provided that this section shall not apply to any newspaper proprietor or printer publishing such advertisement in good faith before receiving written notice from the registrar that such advertisement is contrary to some part of this section.

26. If any person—

(*a*) Shall resist or obstruct any officer of the Board in the performance of any duties or the exercise of any powers under this Act or any regulation; or

(*b*) Shall wilfully mislead any such officer in any particular likely to affect the discharge of his duty,

such person shall be guilty of an offence against this Act and liable on conviction to a penalty not exceeding twenty pounds.

Miscellaneous.

27. (1) The Board with the approval of the Governor may, from time to time, make, alter, and repeal regulations for:—

(*a*) Determining the evidence to be produced and conditions to be fulfilled by any person applying for registration under this Act;

(*b*) Regulating the form and manner of keeping the register;

(*c*) Regulating the meetings and proceedings of the Board;

(*d*) Regulating the manner of making and dealing with complaints against registered veterinary surgeons alleged to be incompetent or to have been guilty of misconduct as such surgeons;

(*e*) Prescribing a scale of fees to be charged in respect of any registration or other proceeding under this Act or the regulations.

(*f*) Regulating or prescribing all matters which by this Act are required or permitted to be prescribed or regulated or which it may be necessary or convenient to regulate or prescribe for giving effect to this Act or the regulations;

(*g*) Prescribing forms for use under this Act.

(2) Such regulations shall state a penalty, not exceeding ten pounds, for any neglect or breach thereof.

28. Any regulations made under this Act shall—

(i) be published in the *Gazette;*

(ii) take effect from the date of publication or from a later date to be specified in such regulations;

(iii) be laid before both Houses of Parliament within seven days after publication if Parliament is in session, and if not, then within seven days after the commencement of the next session.

(2) If either House of Parliament passes a resolution at any time within twenty days after such regulations have been laid before such House disallowing any regulation, such regulation shall thereupon cease to have effect, but without prejudice to anything previously done or suffered thereunder.

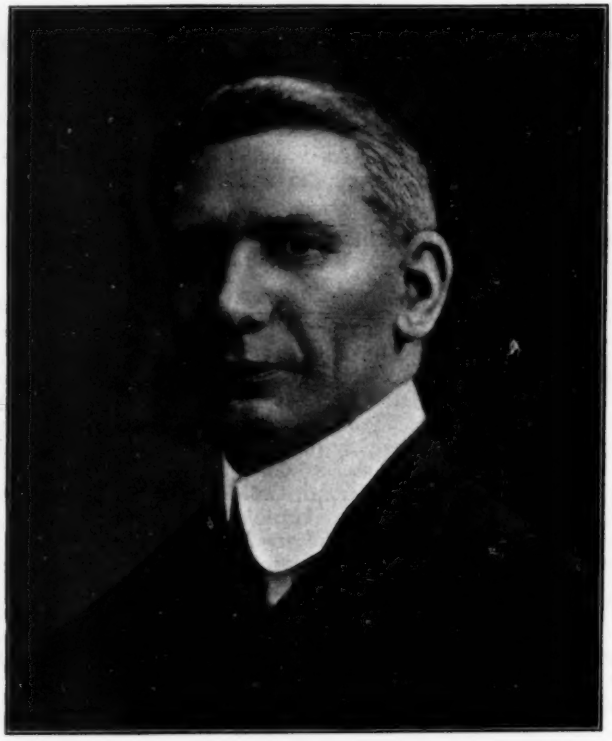
29. Nothing in this Act contained shall extend to or interfere with the business or with the rights and privileges of any registered pharmaceutical chemist in supplying drugs, medical and surgical appliances used for horses, cows, and other animals in the ordinary course of such business nor with the business of any wholesale druggist.

ROYAL COLLEGE OF VETERINARY SURGEONS.

Addresses Wanted.

The present addresses of the under-mentioned are unknown. The Statutory Notices have been sent out by the Registrar, and unless an address is received during the year 1912, the names will not be included in the Register for 1913. Thirteen names were thus removed from the Register during 1911.

Name.	*Last address known.*
Brundell, R. E.	145, Stanhope Street, Hampstead Road, N.W.
Davies, Thomas John ...	Lennox Taylor Co., Iowa, U.S.A.
Davis, A. W.	24, Ensor Street, Bootle, Lancs.
Dixon, E. M.	The Firs, High Street, Haslemere, Surrey.
Eadie, James	66, Aytoun Road, Pollokshields, Glasgow.
Elliott, Robert	6, College Slip, Bromley, Kent.
Fitzgerald, J. Charlton ...	Honolulu, Hawaiian Is., U.S.A.
Gillespie, Samuel	Late Major A.V.C.
Going, William Henry ...	State Veterinarian, Kansas, U.S.A.
Hart, James	Manchester, New Hampshire, U.S.A.
Langran, George B. ...	Singapore, Straits Settlements.
Lawrence, Edward	Wolverhampton, Staffs.
Liddle, F. G.	1142, Hornby Street, Vancouver, B.C., Canada.
Lloyd, P.	50A, York Terrace, Regent's Park, N.W.
McDonald, William ...	Invercargill, New Zealand.
Morgan, J. W. Akerman ...	Late Colonel I.C.V.D.
Newman, William	The Cottage, Breamore, Salisbury.
Porter, Ernest Lees ...	Stephen's Green W., Dublin.
Rugg, F. G.	Nova Scotia, Canada.
Selous, Bruce	Wednesbury, Staffs.
Sewell, A. N. W.	95, High Road, Chiswick.
Skaife, W.	California, U.S.A.
Webb, Adam C.	Late First Class, Army.
Young, W.	Ballymoney, Co. Antrim, Ireland.



PROFESSOR JOHN GILRUTH, M.R.C.V.S., D.V.Sc., F.R.S.E.,
Administrator of the Northern Territory of Australia. (Formerly Dean of the Melbourne University Veterinary School).

Personal.

UNLUCKILY for the profession, the Australian Government have thought so much of the personal ability and energy of Professor John Gilruth, M.R.C.V.S., D.V.Sc., F.R.S.E., the Dean of the Melbourne University Veterinary School, that they have made him Administrator of the Northern Territory. This appointment gives Mr. Gilruth the Governorship of a country which is nearly five times the area of Great Britain and Ireland, a country which naturally possesses many possibilities and is only awaiting an energetic population to further its development, and the salary attached to it commences at £2,250 a year with a residence.

In a recent number of *Australia To-day* there is published a long report of an expedition which, under the command of Professors Gilruth and Spencer, has recently explored a portion of this territory, and in it the writers give a very promising report of the prospects. The total area is over 530,000 sq. miles, and the population, excluding Aborigines, but including Asiatics, is a little over 3,000, of which only 1,274 are white men. According to the latest available statistics there are about 12,000 horses and 400,000 cattle. Professor Gilruth is, and always has been, an enthusiast, and as he possesses that shrewdness which is characteristic of his Scotch race, we may genuinely expect, judging from what he has already done in the limited sphere of veterinary science, that his name will be heard of again in the unlimited sphere of colonial expansion, for which he has been wisely selected by the Commonwealth Government. We regret, as a profession, that the Melbourne University Veterinary School will lose its Principal, but we unite, as we are sure will every member of the profession in England, with our Colonial colleagues, in wishing Professor Gilruth every possible success in the new sphere in which he has embarked. As a proof of the good feeling which goes with him we quote from the Australian *Argus* as follows:—

"Before making the offer to Professor Gilruth, Mr. Thomas communicated with Sir John Madden, as Chancellor of the Melbourne University, on the subject, and received the following reply:—

"'I do not know whether to be very sorry or very glad that Professor Gilruth is likely to leave the University in the circumstances you mention. The national importance of wisely and permanently establishing the settlement of the Northern Territory cannot be exaggerated, while to Victoria the loss of the administrator of our new and initial school of veterinary science—being the man he is in individuality as well as in learning—will certainly be a severe blow, from which we shall not easily recover. However, our Commonwealth has the right, and properly so, to command the best best, and the University has no right to stand in the way of the attainment of the pro-

posed great distinction by Professor Gilruth. Therefore, I for my part set aside regret in sincere congratulation of him.'"

He will continue with us his association as Australasian Editor of the VETERINARY JOURNAL, and we are sure that he will not give up an active interest in the welfare of the profession of which he has been so useful a member.

THAT a combination of successful histrionic and veterinary talent is possible is well illustrated by the recent ovation given to a former President of the Royal Counties' Veterinary Medical Association, Captain Percy Simpson, F.R.C.V.S., who played the title-rôle in the play of "Jim the Penman," at the performance recently given by the Maidenhead Operatic and Dramatic Society. His acting was repeatedly applauded and, in the actual words of the critic, "a more faithful delineation of the part—very heavy and onerous—could not have been desired." It is to be hoped that Mr. Simpson's success as an actor will not cause him to exchange the arduous duties, which of necessity belong to the life of country practice, for the tempting salary which accompanies the successful actor when once he gets "right into the lime-light"!!

IN a recent number of the *British Medical Journal* there is an interesting letter from Sir Hector C. Cameron, of Glasgow, in regard to the early antiseptic work of Lister, from which it may be gathered that the veterinary school in that city was of use in his earlier experiments. The letter was written as a continuation of some correspondence in regard to the question of priority of date upon which the first successful catgut observation, when used for ligaturing an artery, was made. The undermentioned is the portion of the letter which deals with the subject:—

The history of Lister's early experiments in making use of sterilized buried ligatures is as follows: On December 12, 1867, he tied one of the carotid arteries of a horse with a piece of purse silk steeped in a strong watery solution of carbolic acid, the ends being cut short and the wound dressed antiseptically. I assisted him in the performance of that operation in the old Veterinary College, in Parliamentary Road, in this city. In six weeks the old horse was found lying dead one day in its loose box. Lister was confined to his house at the time with a bad cold; and that evening, at his request, I drove to the Veterinary College, taking with me a large supply of mackintosh cloths and old towels. I cut out the entire soft parts of one side of the animal's neck, and returned to Lister's house with the huge parcel of horse-meat, where we sat up till an early hour in the morning, while, with keen interest and hope, he made his first rough dissection of the part. This keen interest he would hardly have shown if he had satisfied himself nearly a year before, as Dr. Fielding wishes us to believe, by

a successful experiment on the carotid artery of a calf, that carbolized catgut was thoroughly reliable as a buried ligature. More detailed and minute examination of the horse's carotid ligatured with silk subsequently confirmed him in the hope "that the antiseptic system would free the deligation of a large artery in its continuity of the two essential elements of danger to which it is now liable—namely, an unhealthy condition of the wound and secondary hæmorrhage. Thus encouraged, I felt justified in carrying a similar practice into human surgery."—"The Collected Papers," vol. ii, p. 65.

The enormous value of the successful sequel of this experiment to the world, animal as well as human, has been too evident to need comment.

By a Royal decree of February 10 last Professors Gedoelst, Hébrant, and Rubay, of the Brussels Veterinary School; Professor Raquet, of the Agricultural Institute at Gembloux; and M. De Roo, State Veterinary Inspector, have been appointed Chevaliers of the Order of Leopold.

Review.

The Register of Veterinary Surgeons, 1912. Published according to Act of Parliament by the Royal College of Veterinary Surgeons, 10, Red Lion Square, London, W.C. Pp. 442. Price 3s. 6d. net.

This annual publication of the Royal College of Veterinary Surgeons is now a very useful one compared with what it was only a few years ago. It includes a considerable amount of information of value to members of the veterinary profession in addition to the statutory list of veterinary surgeons.

It will be seen from this year's register that there is a slight falling off in the number of members of the Royal College of Veterinary Surgeons, from 3,423 to 3,417, and of existing practitioners from 244 to 226. The calendar, which was a new feature last year, has been brought up to date, and a quantity of fresh items have been added. The latter include a copy of the questions set at the various written examinations during the year 1911, and also three Acts of Parliament of special moment to our profession, which were passed during last year, viz., The Diseases of Animals Act, 1911; The Coal Mines Act, 1911; and The Protection of Animals Act, 1911. We hope by the time the next register is published that the Veterinary Surgeons Act Amendment Bill will have been passed so that it can be included.

The Registrar is to be congratulated on the results of his efforts to produce a useful volume.

Translations.

HÆMATOMA OF THE SPLEEN IN THE DOG.

By Veterinary-Surgeon JOHANN LUKAS.

The various diseases of the spleen are generally established on the *post-mortem* table, but their clinical diagnosis, according to Hutyra-Marek, is seldom ascertained because "on the one hand the examination on account of the unfavourable anatomical situation of this organ in large animals is difficult, and, on the other hand, diseases of the spleen generally only cause very indistinct functional derangements." According to Rupp (*Berl. Tier. Woch.*, 1906), who observed obstinate stoppage in a dog with a large hæmatoma, hæmorrhages not infrequently occur in the spleen, but they can, however, be scarcely diagnosed clinically.

Relatively easily traumatic affections of the spleen may be diagnosed in which examination of the urine furnishes a distinct guide (Reisinger).

The rareness of spleen hæmatoma makes the following account of a case in the dog interesting, especially as the disease was established *post mortem*. A strong fox terrier kept at a stable was violently thrashed with a stick. After about two hours the following state of affairs was observed: The dog lay stretched out as if paralyzed, howled and moaned uninterruptedly so that he could be heard far away. Now and then he tried to get up, but could not raise himself; he slavered a good deal. Examination, beyond evidence of severe pain, showed nothing positive, palpation of the abdomen by steady movements caused intense moaning. A subcutaneous injection of hydrochlorate of morphia only lessened the pain for a short time. Examination during narcosis gave little aid by which to obtain a correct diagnosis. The patient groaned on strong pressure on the left flank over the ribs.

The mucous membranes and the temperature showed nothing special; the pulse was small and quickened.

This was at night. Early in the morning the animal awoke from the narcosis and began to howl again. The condition remained quite unchanged. An internal injury was surmised, and since the owner wished to shorten the great agony of the dog, the patient was shot. *Post mortem* showed, besides slight suffusions under the skin and in the muscular tissue of the loins and belly neighbourhood, a hæmatoma in the inferior tongue-shaped portion of the pars lateralis of the spleen. The hæmatoma was superficial, half ball-shaped, with a diameter of 5 cm. The shape resembled very much the hæmatoma of the spleen in the horse described in Kitt's "Pathological Anatomy," vol. ii, p. 436.

Although a "spleen extirpation" is borne without disturbance (Ellenberger-Scheunert "Physiology"), hæmorrhage under the spleen capsule, due to a spleen injury, is generally accompanied

by great pain, as is also usually the case in traumatic affections of the spleen in cattle.—*Oesterreichische Woch. für Tierheilkunde.*

RECORDS FROM PRACTICE.

By BITTNER.

Abscess in the Larynx.—In a nine-months-old steer, proffered food was eagerly seized and chewed. After a short time there was forward stretching of the head, coughing and spewing out of the chewed food. A swelling as big as one's fist, not painful, movable with the œsophagus, was found under the larynx. Nutrition state bad. Suspicion of tuberculosis. Slaughter showed an abscess in the œsophageal wall with complete closure of the gullet.

Paralysis of the Hindquarters in a Cow.—A well-nourished, four-year-old, five-months pregnant cow showed tottering and trembling in the hind-parts. On trying to lead the cow, the hind-legs knuckled over so that the dorsal surface of the phalanges came in contact with the ground. *Treatment.*—Employment of inducted electric stream; severe pain with a quite weak flow of electricity. After three applications of the stream only a groping gait, and after the fifth shock this disappeared.

Perforation of the Intestine.—Catarrh of the large intestine in a well-nourished eight-year-old mare; colicky symptoms for three days. On the fourth day food taken as usual, and then employment of the animal for eight days at light work. On the fourteenth day after the illness the mare fell down in the stall after work, and the lethal exit soon occurred. *Post mortem* showed ulcerations in the right lower wall of the colon, one of which had perforated the intestine.—*Der Tierarzt.*

TUBERCULOSIS OF SWINE.

Tuberculosis of the pig has made great ravages in the Argentine Republic. At the abattoir of Liniero (Buenos Ayres) the percentage of tuberculous swine is higher than that observed in cattle; from 6.5 per cent. in 1898 it rose to 11 per cent. in 1903. From the point of view of bacteriology, tuberculosis of the pig presents no differences from human and bovine tuberculosis. Bacilli of human and bovine origin are equally virulent for the pig, which is fequently infected by them.

Etiology.—The porcine race is peculiarly susceptible to tuberculous infection; it holds a middle position in this respect between the human and bovine species.

Whilst all methods of tuberculous infection are efficacious in swine, the transmission of the disease occurs mostly by ingestion. The varied experiences of Chauveau, Gunther, Harms, Parrot,

and Viseur show that the digestive tube in swine constitutes a very favourable region for the transmission of tuberculosis. Ravenel, of the Pennsylvania University, produced the infection in pigs in every case by the ingestion of human bacilli.

Tuberculosis by inhalation (by the respiratory tract) is relatively rare. The *lesions* of tuberculosis in the pig present different aspects from those in the other mammiferæ. According to the method of extension one must distinguish localized tuberculosis when infection is propagated by the lymphatics, and generalized tuberculosis when invasion takes place through the blood-stream. In the first case the glands of the neck are the most often attacked; in the second, according to statistics by Dr. Zabala, the lesions are situated in the lungs, the bronchial and mediastinal glands and the liver in the proportion of 11 to 11; then follow the spleen, the glands of the neck, of the liver, of the stomach, &c.

Diagnosis.—From the clinical point of view the disease generally passes unperceived.

Direct search for the bacilli may give useful indications in the case of open tuberculosis, or of lesions communicating with the exterior.

Inoculation of the guinea-pig with suspected pathological products is the best method of control.

Diagnostic injections of dilute tuberculin in the dose of 1 to 3 c.c are much to be recommended; the general rules for their employment are the same as in the ox.

Radiographic examination may be usefully used to determine scrofula, so frequent in pigs, when palpation of the glands gives no results.

Diagnosis from the carcase is generally easy; an attentive examination is needed when the lesions are discrete.

The general *prophylaxis* of porcine tuberculosis may be stated thus:—

Slaughter affected animals.

Disinfect contaminated places.

Give sound, and preferably grain, food.

Cook offals and sterilize dairy residues.

Do not confide any pig to the care of tuberculous folk.

As for the transmission to man of tuberculosis by pig meat and from the point of view of sanitary inspection, the author bearing in mind the experiments of Toussaint, Leclainche, Gunther and Harms, Zabala, gives the views of this last investigator:—

(1) In no case has muscle juice, supplied from animals infected with generalized tuberculosis injected in strong doses into the most susceptible animals by the surest way, occasioned the illness.

(2) In view of this result one should be more tolerant in inspecting this meat than in the case of cattle.

(3) But it should not be forgotten that the flesh of the pig is consumed half raw, and that, at least for the moment, total

or partial seizure is indicated in every case where the lesions are not completely isolated.

(4) Viscera and affected or contaminated tissues ought to be destroyed in every case.—*Revue Générale de Médecine Vétérinaire.*

TETANUS-LIKE SYMPTOMS IN A HORSE INFESTED WITH ASCARIDES.

By Chief Veterinary-Surgeon OTTO,

A four-year-old East Prussian gelding fell ill with the following symptoms:—

The horse stood with a stiff neck, extended head and outstretched limbs. Movements were executed gropingly and uncertainly. The croup and neck muscles were held rigid. The pulse was strong, 46 per minute, the breathing laboured and quickened. Since no other symptoms of illness could be perceived, the diagnosis of tetanus was given and treatment adopted. On the following day all the previously described symptoms had disappeared. Yet soon after, in eight days, the same symptoms of illness occurred again and just as quickly disappeared. At the same time it was noticed that single ascarides were passed by the horse. The horse now received antimony tartrate in the drinking water and a dose of physic. On the next day numerous round worms were passed. Since then the tetanus-like symptoms have not reappeared, so that the complaint may be traced to the presence of ascarides.

Probably the sensory nerves of the intestine were irritated by the worms and caused reflex action, producing a condition of contraction in distinct groups of muscles.—*Zeitschrift für Veterinärkunde.*

[Judging by the frequency of nervous symptoms in animals affected with ascarides, it is more probable that they are due to some specific toxin than to reflex action.—Eds. V. J.]

Correspondence.

VETERINARY ACT FOR WESTERN AUSTRALIA.

Sir,—By this mail I have forwarded you a copy of the new Veterinary Act, which was passed during the last Session.

You will find it is not all which the qualified man would desire, but it is a start, and once it gets into working order and we get a few good, honest vets. here, they can get it improved.

It has taken me fully twelve years to keep pegging away to get the thing through, and it was not until we got a Labour Government in power could we get a Bill brought forward.

I might say it took the Labour party three months to realize that there was a necessity for a Bill in this, the country of quacks.

Yours faithfully,

Titus Lander.

February 10, 1912.

AN ECRASEUR FOR OVARIOTOMY OF THE MARE OR COW.

By FREDERICK HOBDAY, F.R.C.V.S.,

Kensington, W.

So far as I am aware, there has not yet been brought before the notice of the veterinary profession an ecraseur which is equally suitable for spaying mares or cows, and this one here illustrated is the result of several models, which have been made at my request by Messrs. Arnold and Sons, of Giltspur Street, E.C.

I have thoroughly tested the instrument on a large number of dairy cows and over fifty vicious mares, and claim for it the advantage that, with the handle in the position here depicted, there is much greater facility for working conveniently; and that in the cases in which one meets with an unusually tough pedicle (a very common occurrence in a vicious mare), there is no difficulty whatever in removing the ovary, even with the most blunt-edged chain.

Letters and Communications, &c.

Dr. Ferry; Mr. F. Bullock; Mr. T. Lander; Mr. G. W. D. Sarjeant; Mr. H. P. Lewis; Mr. F. M. Wallis; Mr. T. Parker; Mr. J. Lindsay; Mr. W. Lothian.

Books and Periodicals, &c., Received.

Journal of the Royal Army Medical Corps; Racueil de Médecine Vétérinaire; L'Hygiène de la Viande et du Lait; Revue Générale de Médecine Vétérinaire; Der Tierarzt; Zeitschrift für Veterinärkunde; Berliner Tierärztliche Wochenschrift; Osterreichische Wochenschrift für Tierheilkunde; La Clinica Veterinaria; Revista de Medicina Veterinaria; Board of Agriculture and Fisheries; Department of Agriculture and Technical Instruction for Ireland; Kennel Cazette.

NOTE.—All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C. Telephone, 4646 Gerrard. Telegrams, "Baillière, London."

Letters for the JOURNAL, literary contributions, reports, notices, books for review, exchanges, new instruments or materials, and all matter for publication (except advertisements) should be addressed to the Editors.

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